St. Louis City Ordinance 65021

FLOOR SUBSTITUTE
BOARD BILL NO. [00] 104

INTRODUCED BY ALDERMAN Stephen Gregali, Stephen J. Conway

An ordinance pertaining to the Mechanical Code of the City of Saint Louis; repealing Ordinance 63806; adopting the International Mechanical Code, 2000 Edition with changes, as the Mechanical Code of the City of Saint Louis; and containing a penalty clause, a savings clause, a severability clause and an emergency clause.

BE IT ORDAINED BY THE CITY OF ST. LOUIS AS FOLLOWS:

SECTION ONE. Ordinance 63806 approved July 3,1996, pertaining to the 1996 International Mechanical Code, is hereby repealed.

SECTION TWO.

The International Mechanical Code, 2000 Edition as published by the International Code Council, Inc., a copy of which is on file in the Office of the Register of the City of Saint Louis, is hereby adopted as "The Mechanical Code of the City of Saint Louis, in the State of Missouri", for the governing of the design, installation, construction and maintenance of mechanical systems, by providing reasonable safeguards to protect the public health and safety against the hazards of inadequate, defective or unsafe mechanical systems and installations as herein provided; and that each and all of the regulations, provisions, penalties, conditions and terms of said International Mechanical Code are hereby referred to, adopted and made a part hereto, as if set out in this ordinance with the additions, insertions, deletions and changes prescribed in Section Three of this Ordinance.

SECTION THREE.

The 2000 International Mechanical Code is amended and changed in the following respects:

Change Chapter One to read as follows:

CHAPTER 1
ADMINISTRATION

SECTION 101
GENERAL

101.1 Title. These regulations shall be known as the Mechanical Code of the City of Saint Louis, hereinafter referred to as "this code".

101.2 Scope. This code shall regulate the design, installation, maintenance, alteration, relocation and inspection of mechanical systems that are installed and utilized to provide control of environmental conditions and related processes within buildings. This code shall also regulate those mechanical systems, system components, equipment and appliances specifically addressed in this code.

101.2.1 Appendices. Provisions in the appendices shall not apply unless specifically adopted. Appendix A is hereby adopted for use by the City of Saint Louis.

101.3 Intent. The purpose of this code is to provide minimum standards to safeguard life and limb, health, property and public welfare by regulating and controlling the design, construction, installation, quality of materials, location, operation, and maintenance or use of mechanical systems. This code shall be construed to secure its expressed intent, which is to insure public health, safety and welfare insofar as they are affected by the installation and maintenance of mechanical systems.

SECTION 102
APPLICABILITY

102.1 General. The provisions of this code shall apply to all matters affecting or relating to structures and premises as set forth in Section 101. Where, in a specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive sections shall govern.

102.2 Existing installations. Except as otherwise provided for in this chapter, a provision in this code shall not require the removal, alteration or abandonment of, nor prevent the continued utilization and maintenance of, an existing mechanical system lawfully in existence at the time of adoption of this code.

102.3 Maintenance. Mechanical systems, both existing and new, and parts thereof shall be maintained in proper operating condition in accordance with the original design and in a safe and sanitary condition. Devices or safeguards which are required by this code shall be maintained in compliance with the code edition under which installed. The owner or the owner's designated agent shall be responsible for maintenance of mechanical systems. To determine compliance with this provision, the code official shall have the authority to require a mechanical system to be reinspected.

102.4 Additions, alterations or repairs. Additions, alterations, renovations or repairs to a mechanical system shall conform to that required for a new mechanical system without requiring the existing mechanical system to comply with all the requirements of this code. Additions, alterations or repairs shall not cause an existing mechanical systems to become unsafe, hazardous or overloaded.

Minor additions, alterations, renovations and repairs to existing mechanical systems shall meet the provisions for new construction, unless such work is done in the same manner and arrangement as was in the existing system, is not hazardous and is approved.

102.5 Change in occupancy. It shall be unlawful to make a change in the occupancy of any structure which will subject the structure to any special provision of this code applicable to the new occupancy without approval. The code official shall certify that such structure meets the intent of the provisions of law governing building construction for the proposed new occupancy and that such change of occupancy does not result in any hazard to public health, safety or welfare.

102.6 Historic buildings. The provisions of this code relating to the construction, alteration, repair, enlargement, restoration, relocation or moving of building or structures shall not be mandatory for existing buildings or structures identified and classified by the state or City of Saint Louis as historic buildings when such buildings or structures are judged by the code official to be safe and in the public interest of health, safety and welfare regarding any proposed construction, alteration, repair, enlargement, restoration, relocation or moving of buildings.

102.7 Moved buildings. Except as determined by Section 102.2, mechanical systems that are a part of buildings or structures moved into

or within the City of Saint Louis shall comply with the provisions of this code for new installations.

102.8 Referenced codes and standards. The codes and standards referenced in this code shall be those that are listed in Chapter 15 and considered part of the requirements of this code to the prescribed extent of each such reference. Where differences occur between provisions of this code and the referenced standards, the most stringent provision shall apply.

102.9 Requirements not covered by code. Requirements necessary for the strength, stability or proper operation of an existing or proposed mechanical system, or for the public safety, health and general welfare, not specifically covered by this code, shall be determined by the code official.

102.10 Workmanship. All work shall be conducted, installed and completed in a workmanlike and approved manner so as to secure the results intended by this code.

SECTION 103
SECTION OF MECHANICAL EQUIPMENT INSPECTION

103.1 General. There is hereby created the Section of Mechanical Equipment Inspection within the Division of Building and Inspection which shall have control and enforce all codes, regulations and ordinances pertaining to mechanical installations and systems in accordance with this code. The head of this section shall be known as the Mechanical Equipment Inspection Supervisor, who shall be appointed by the Building Commissioner. Throughout this code, the Mechanical Equipment Inspection Supervisor, the Chief Mechanical Engineer, the Building Commissioner and their authorized employees shall be referred to as the code official.

103.2 Mechanical equipment inspection supervisor. There shall be appointed by the Building Commissioner a Mechanical Equipment Inspection Supervisor. The Supervisor shall have a minimum of five years experience as a Mechanical Inspector and possess the qualifications established by the Department of Personnel.

103.3 Deputies. There shall be appointed by the code official a sufficient number of Mechanical Equipment Inspectors to adequately perform all

inspection duties and enforce all ordinances pertaining to the Mechanical Equipment Inspection Section in accordance with subsequent sections of this code and City of Saint Louis budgetary constraints. All Mechanical Inspectors shall have had at least three years experience and possess the qualifications set forth by the Department of Personnel.

103.3.1 Assistant to the supervisor. One such inspector shall assist the Mechanical Equipment Inspection Supervisor. The assistant shall assume the responsibilities of the Mechanical Equipment Inspection Supervisor in the Supervisor's absence or disability.

103.3.2 Restriction of employees. An official or employee connected with the Mechanical Equipment Inspection Section, except one whose only connection is that of a member of the Board of Stationary Engineers, shall not be engaged in, or directly or indirectly connected with the furnishing of labor, materials or appliances for the construction, alteration or maintenance of a building in the City of saint Louis, or the preparation of construction documents thereof, unless that person is the owner of the building; nor shall such code official or employee engage in any work that conflicts with official duties or with the interests of the department.

103.4 Liability. The code official and employees charged with the enforcement of this code, while acting for the City of Saint Louis, shall not thereby be rendered liable personally, and are hereby relieved from all personal liability for any damage accruing to persons or property as a result of any act required or permitted in the discharge of official duties.

Any suit instituted against any code official or employee because of an act performed in the lawful discharge of duties and under the provisions of this code shall be defended by the legal representative of the City of Saint Louis until the final termination of the proceedings. The code official or any employees shall not be liable for any cost in or arising from any action, suit or proceeding that is instituted in pursuance of the provisions of this code. Any code official or employee of the Division of Building and Inspection, Department of Public Safety, acting in good faith and without malice, shall be free from liability for acts performed under any of its provisions or by reason of any act or omission in the performance of official duties in connection therewith.

The above protection shall also extend to former employees for work performed during their period of employment with the City of Saint Louis.

SECTION 104
DUTIES AND POWERS OF THE CODE OFFICIAL

104.1 General. The code official shall enforce all of the provisions of this code and shall act on any question relative to the installation, alteration, repair, maintenance or operation of all mechanical systems, devices and equipment, except as otherwise specifically provided for by statutory requirements or as provided for in Sections 104.1.1 through 104.8.

104.1.1 Emergency condemnation. Whenever the code official shall find any building, structure, premises or portion thereof no matter for what purpose used, to be in an unsafe or dangerous condition and that there is an actual and potential danger to the occupants or those in the proximity of any building, structure or premises which poses an immediate danger to public safety or welfare, the code official shall order the immediate evacuation of said building, structure or premises. All of the occupants so notified shall immediately vacate the building, structure, or premises and no person shall re-enter until authorized to do so by the code official.

Any person who refuses to leave, interferes with the evacuation of other occupants, or continues any operation after having been given an evacuation order by the code official, except such person(s) directed to perform work to remove a violation or unsafe condition shall be deemed in violation of this section whereupon it shall be the duty of the Police Department to immediately remove such person(s) from said building, structure, or premises and prevent anyone from re-entering the building, structure or premises until such time that the Police Department shall have been notified by the Building Division that the same is in a safe condition.

Any person who shall violate any provisions of this section shall, upon conviction thereof, be penalized as set forth in *SECTION FOUR*.

104.1.2 Authority to placard. The code official has the authority to post a placard in a conspicuous place on a building or premises where the mechanical system has been found to be unsafe or inadequate.

104.1.3 Placarded building. Placards shall remain on said building until the required repairs, replacements or improvements have been made and accepted by the code official, and it shall be unlawful to deface or willfully remove any such placard that has been posted on a building without first obtaining consent of the code official. It shall be unlawful for any person to reside in, use, rent, lease or occupy such building for any purpose while so placarded and no person shall remove said placards without the consent of the code official.

104.2 Rule making authority. The code official shall have authority as necessary in the interest of public health, safety and general welfare, to adopt and promulgate rules and regulations; to interpret and implement the provisions of this code; to secure the intent thereof; and to designate requirements applicable because of local climatic or other conditions. Such rules shall not have the effect of waiving structural or fire performance requirements specifically provided for in this code, or of violating accepted engineering practice involving public safety.

104.2.1 Accepted engineering practice. In the absence of provisions not specifically contained in this code or approved rules, the regulations, specifications and standards listed in Chapter 15 shall be deemed to represent accepted engineering practice in respect to the material, equipment, system or method of construction therein specified.

104.3 Applications and permits. The code official shall receive applications for and issue permits for the installation, replacement, relocation and alteration of mechanical systems and equipment, and inspect the premises for which such permits have been issued and enforce compliance with the provisions of this code. Such application shall describe in detail the nature of the work and the location thereof by street and number. No person shall begin such work unless and until they shall have submitted a proper application and received a permit. In the case of an emergency, work may begin upon the verbal request of the applicant and verbal permission of the code official, upon the condition that such written application shall be filed in the office of the code official without delay.

Exception: Buildings, structures or premises owned and occupied by the United States of America or the State of Missouri.

104.4 Inspections. The code official shall make all of the required inspections, or the code official may accept reports of inspection by

authoritative and recognized services or individuals. All reports of such inspections shall be in writing and certified by a responsible officer of such authoritative service or by the responsible individual. The code official is authorized to engage such expert opinion as deemed necessary to report upon unusual technical issues that arise subject to the approval of the appointing authority.

104.4.1 Dangerous, hazardous, unsanitary, or unapproved installations. The code official shall have the authority to seal out of service mechanical equipment, devices, and appurtenances covered by the Building and Mechanical Codes when, in the code official's opinion, any of these items are in an unsafe, hazardous, or unsanitary condition, or if the installation was made without obtaining the necessary permit or permits, or if the installation violates the provisions of these codes.

104.4.2 Notice of sealing out of service. Before sealing any device out of service, the code official shall, except in cases of emergency, serve ten calendar days written notice upon the building owner, occupant or collector of rent either directly or by United States mail, stating intention to seal the equipment out of service and the reasons therefore.

104.4.3 Unlawful to remove seal. Any device sealed out of service by the code official shall be plainly marked with a sign or tag indicating such sealing, and any defacing or removal of the sign or tag, or any tampering with or removal of the seal without approval of the code official, or operation of the sealed unit, shall constitute a violation of this code. The penalty for violation of this section shall be as set forth in *SECTION FOUR.*

104.4.4 Utility disconnect. Whenever the code official determines that there is an eminent danger to public safety, the code official may request that the public utilities be disconnected to that structure or premises.

104.5 Right of entry. Whenever it is necessary to make an inspection to enforce the provisions of this code, or whenever the code official has reasonable cause to believe that there exists in a building or upon any premises any condition or violation of this code which makes the building or premises unsafe, insanitary, dangerous or hazardous, the code official shall have the authority to enter the building or premises at all reasonable times to inspect or to perform the duties imposed upon the code official by this code. If such building or premises is occupied, the code official shall present credentials to the occupant and request entry.

If such building is unoccupied, the code official shall first make a reasonable effort to locate the owner or other person having charge or control of the building or premises and request entry. If entry is refused, the code official has recourse to every remedy provided by law to secure entry.

When the code official has first obtained a proper inspection warrant or other remedy provided by law to secure entry, an owner or occupant or person having charge, care or control of the building or premises shall not fail or neglect, after proper request is made as herein provided, to promptly permit entry therein by the code official for the purpose of inspection and examination pursuant to this code.

104.6 Identification. The code official shall carry proper identification when inspecting structures or premises in the performance of duties under this code.

104.7 Notices and orders. The code official shall issue all necessary notices or orders to assure compliance with this code.

104.8 Department records. The code official shall keep official records of mechanical applications received, permits issued, fees collected, reports of inspections, and notices and orders issued. Such records shall be retained in the official records for three years, except notices and orders which have been complied need not be kept.

SECTION 105
APPROVAL

105.1 Modifications. Whenever there are practical difficulties involved in carrying out the provisions of this code, the code official shall have the authority to grant modifications for individual cases, provided the code official shall first find that the special individual reason makes the strict letter of this code impractical and the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, life and fire safety requirements.

105.2 Alternative materials, methods and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material or method of construction shall be approved where

the code official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code for quality, strength, effectiveness, fire resistance, durability and safety.

105.2.1 Approved materials and equipment. All materials, equipment and devices not covered by this code and approved by the code official shall be constructed and installed in accordance with such approval.

105.3 Required testing. Whenever there is insufficient evidence of compliance with the provisions of this code, or evidence that a material or method does not conform to the requirements of this code, or in order to substantiate claims for alternative materials or methods, the code official shall have the authority to require tests as evidence of compliance to be made at no expense to the City of Saint Louis.

105.3.1 Test methods. Test methods shall be as specified in this code or by other recognized and accepted test standards. In the absence of recognized and accepted test methods, the code official shall approve the testing procedures.

105.3.2 Testing agency. All tests shall be performed by an approved independent testing agency.

105.3.3 Test reports. Reports of tests shall be retained by the code official for the period required for retention of public records.

105.4 Material and equipment reuse. Materials, equipment and devices shall not be reused unless such elements have been reconditioned, tested and placed in good and proper working condition and approved by the code official.

SECTION 106
PERMITS

106.1 When required. No person shall commence any mechanical work until a permit for such work has been issued by the code official. The fees for said permits shall be paid to the City of Saint Louis for each permit herein required. All work shall be done by the person or corporation in whose name the permit or permits required by this section are issued, or any other qualified person or corporation designated by the

permit holder. Any person who shall fail to comply with or who shall violate any of the provisions of this section shall be subject to the penalty provisions of SECTION FOUR.

Exception: When equipment replacements and repairs must be performed in an emergency situation, the permit application shall be submitted within the next working business day of the section of mechanical equipment inspection.

106.2 Permits not required. Permits shall not be required for any of the following:

1. Any portable heating appliance.

2. Any portable ventilation equipment.

3. Any portable cooking unit.

4. Replacement of any minor part which does not alter approval of equipment or make such equipment unsafe.

5. Any portable evaporation cooler; and

6. Any self-contained refrigeration system containing 10 pounds (4.53 kg) or less of refrigerant, or actuated by motors of 1 horsepower (0.75 kW) or less.

7. Heating, cooling and ventilating appliances and equipment installed in residential dwellings of six units or less.

Exemption from the permit requirements of this code shall not be deemed to grant authorization for work to be done in violation of the provisions of this code or other laws or ordinance of the City of Saint Louis.

106.3 Application for permit. Each application for a permit, with the required fee, shall be filed with the code official in such written form as the code official prescribes and shall be accompanied by an adequate written description of the proposed mechanical work and its location.

The application shall be made by the owner or lessee of a structure, or the agent of either, or by the registered design professional employed in connection with the proposed work or the contractor employed in connection with the proposed work. The full names, addresses and telephone numbers of the owner, lessee, applicant and the responsible officers, if the owner or lessee is a corporate body, shall be stated in the application.

106.3.1 Construction documents. The code official is authorized to require the submission and approval of a set of construction documents showing the nature and extent of the proposed work before a permit is issued. If, in the course of the work, it is found necessary to make any change from the approved construction documents on which a permit has been issued, amended construction documents shall be submitted, and if approved, a supplementary permit shall be issued, after payment of any additional fees, to cover the change after the same conditions required to secure the original permit have been satisfied. The code official is permitted to waive the requirements for filing construction documents where the work involved is of a minor nature. When the quality of the materials is essential for conformity to this code, specific information shall be given to establish such quality, and this code shall not be cited, or the term "legal" or its equivalent used as a substitute for specific information.

The code official is authorized to require the submission of specific information in order to determine compliance with this code

All construction documents prepared by a registered design professional shall bear the original seal, signature and date in ink of that person. Construction documents for structures more than two stories in height shall indicate how required structural and fire resistance rating integrity will be maintained, and where penetrations will be made for electrical, mechanical, plumbing and communication conduits, pipes and systems.

106.3.2 Seismic installations. Construction documents for installations which must meet the seismic requirements of the Building Code listed in Chapter 15 of this code shall show the details of all pertinent anchorage and bracing and shall bear the original seal, signature and date in ink of a registered design professional licensed to practice in the State of Missouri.

106.3.3 Amendments to application. Subject to the time limitations of Section 106.3.4, amendments to the construction documents, application or other records accompanying the same shall be filed at any time before completion of the work for which the permit is sought or issued. Such amendments shall be deemed part of the original application and shall be filed in the same manner as the original.

106.3.4 Time limitation of application. An application for a permit for any proposed work shall be deemed to have been abandoned six months after the date of filing, unless such application has been diligently prosecuted or a permit shall have been issued. The code official may grant one or more extensions of time for additional periods not exceeding one hundred eighty days each, if there is reasonable cause.

106.4 Permit issuance. The application, construction documents and other data filed by an applicant for a permit shall be reviewed by the code official. If the code official finds that the proposed work conforms to the requirements of this code and all laws and ordinances applicable thereto, and that the fees specified in Section 106.5 have been paid, a permit shall be issued to the applicant. A mechanical permit shall not be transferable.

If the application or the construction documents do not conform to the requirements of all pertinent ordinances of the City of Saint Louis, the code official shall reject such application in writing, stating the reasons therefore.

106.4.1 Approved construction documents. When the code official issues a permit where construction documents are required, such approved construction documents shall not be changed, modified or altered without authorization from the design professional and the code official. Work shall be done in accordance with the approved construction documents.

The code official is authorized to issue a permit for the installation of part of a mechanical system before the application for the whole system has been submitted or approved, provided adequate information and detailed statements have been filed complying with all the pertinent requirements of this code. The holder of such permit shall proceed at their own risk without assurance that the permit for the entire mechanical system will be granted.

Except for unsafe mechanical systems or installations, this code shall not require changes in the construction documents or mechanical work for which a lawful permit has been heretofore issued or otherwise lawfully authorized, and the installation of which shall have been actively prosecuted within ninety days after the effective date of this code and is completed with dispatch.

106.4.2 Validity. The issuance of a permit or approval of construction documents shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or of other ordinances of the City of Saint Louis. A permit presuming to give authority to violate or cancel the provisions of this code shall be invalid.

The issuance of a permit based upon construction documents and other data shall not prevent the code official from thereafter requiring the correction of errors in said construction documents and other data or from preventing building operations from being carried on thereunder when in violation of this code or of other ordinances of the City of Saint Louis

106.4.3 Expiration. Every permit issued by the code official under the provisions of this code shall expire by limitation and become null and void if the work authorized by such permit is not commenced within one hundred eighty days from the date of such permit, or if the work authorized by such permit is suspended or abandoned at any time after the work is commenced for a period of one hundred eighty days. The code official may grant one or more extensions of time for an additional period the total not to exceed six months if there is reasonable cause. Before such work recommences, a new permit shall be first obtained and a new fee paid.

106.4.4 Extensions. A permittee holding an unexpired permit shall have the right to apply for an extension of the time within which the permittee will commence work under that permit when work is unable to be commenced within the time required by this section for good and satisfactory reasons. The code official shall extend the time for action by the permittee for a period not exceeding one hundred eighty days if there is reasonable cause.

106.4.5 Suspension or revocation of permit. The code official shall suspend or revoke a permit or approval issued under the provisions of this code in case of any false statement or misrepresentation of fact in

the application or on the construction documents upon which the permit or approval was based. A permit shall also be considered for revocation under the following provisions:

1. The owner of the property or the contractor shall request cancellation in writing stating the reasons for the request for cancellation. No refund of fees shall be made.

2. The code official may revoke the permit for fraud, for non-compliance with the code or for failure to pay the prescribed fees.

Should the mechanical contractor install work that is not in compliance with the mechanical, fire or building code, the contractor shall be directed by the code official to make necessary corrections to assure code compliance and no other permits shall be issued to said contractor until such work is corrected and approved by the code official.

106.4.6 Retention of construction documents. One set of construction documents shall be retained by the code official until final approval of the work covered therein. One set of construction documents shall be returned to the applicant and said set shall be kept at the site of the building or work at all times during which the work authorized thereby is in progress.

106.4.7 Posting of permit. A true copy of the permit shall be kept on the site of operations, open to public inspection during the entire time of prosecution of the work and until the completion of the same.

106.5 Fees. A permit shall not be issued until the fees prescribed in Table 106.5.2 have been paid, nor shall an amendment to a permit necessitating an additional fee because of the additional work involved be released until the additional fee has been paid. Fees for the inspections herein prescribed shall be paid to and collected by the City of Saint Louis. A permit may be revoked if payment is returned for insufficient funds.

106.5.1 Work commencing before permit issuance surcharge. In case any work for which a permit required by this code is started or proceeded with prior to the permit being issued, the total normal fees applicable shall be increased by the amount as set forth in Table 106.5.1. The payment of said surcharge shall not relieve any persons from fully

complying with the requirements of this code for performance or execution of the work, nor from other penalties prescribed by law.

TABLE 106.5.1 SCHEDULE FOR SURCHARGE	
PERMIT FEE	SURCHARGE
$ 0 TO $ 50	$ 30.00
$ 51 TO $ 200	$ 90.00
$ 201 TO $ 500	$ 240.00
$ 501 TO $ 2,000	$ 360.00
$ 2,001 TO $ 10,000	$ 480.00
OVER $ 10,000	$1000.00

106.5.2 Fee schedule. The fees for all mechanical work shall be as indicated in Table 106.5.2. Mechanical permit fees shall not be waived for contractors working in facilities owned and operated by the City of Saint Louis.

TABLE 106.5.2 FEES FOR MECHANICAL PERMITS			
ITEM	FEE	MINIMUM FEE	REMARKS AND REQUIREMENTS
ELEVATORS			

Per unit - 5 floors or less Per unit - more than 5 floors	$ 70.00 $140.00	$ 70.00	To install, relocate or alter unit
MANLIFT, SIDEWALK ELEVATOR, DUMBWAITER, MOVING STAIRWAYS, MOVING SIDEWALKS	$ 85.00	$ 85.00	To install, relocate or alter unit
AUTO LIFTS - Per Unit	$ 55.00	$ 55.00	To install, relocate or alter unit
WORKMENS HOIST - Per Unit	$100.00		To install, relocate or alter unit
MISCELLANEOUS HOISTING AND ELEVATING EQUIPMENT - Per Unit	$ 55.00		To install, relocate or alter unit
REFRIGERATION SYSTEM (See NOTE) Up to 20 tons For each additional 5 tons or fraction thereof	$4.25/ton $ 4.25	$ 15.00	To install, relocate or alter unit
VENTILATION SYSTEMS - Permit Fee 2,000 cfm to 15,000 cfm Over 15,000 cfm	$ 40.00 $ 70.00		To install, relocate or alter unit

EXHAUST HOODS/SYSTEMS Up to 5,000 cfm Over 5,000 cfm	$ 20.00 $ 35.00		To install, relocate or alter unit
BOILERS-LOW PRESSURE - per boiler Up to 500,000 BTU/Hr. input 500,001 - 1,000,000 BTU/Hr. input Over 1,000,000 BTU/Hr. input	$ 20.00 $ 28.00 $ 42.00	$ 20.00	To install, relocate or alter unit
BOILERS-HIGH PRESSURE - per boiler Up to 200 sq. ft. of heating surface Over 200 but less than 2,000 sq. ft. of heating surface 2,000 sq. ft. or more of heating surface	$ 20.00 $ 28.00 $ 42.00	$ 20.00	To install, relocate or alter unit
PRESSURE VESSELS - Per unit	$ 20.00	$ 20.00	To install, relocate or alter unit
FIRE/ SMOKE DAMPERS - Per Unit	$ 15.00		To install, relocate or alter unit

NOTE: All installations of refrigeration and/or air conditioning equipment require a permit except the following:

a. Portable equipment (window units)

b. Units of less than 12,000 BTU per hour capacity.

c. Incremental (through the wall) cooling or heating/cooling units.

d. Condensing units serving buildings of six units or less.

All installations of ventilation systems (ducted) require a permit except ventilation systems under 2,000 cfm capacity.

106.5.3 Initial inspections. The fees for all mechanical initial inspections shall be charged at the rate prescribed in Table 106.5.3. This shall be in addition to the mechanical permit fee set forth in Table 106.5.2.

TABLE 106.5.3

FEES FOR INITIAL MECHANICAL INSPECTION

ITEM	FEE	MINIMUM FEE
ELEVATORS Per unit per floor rise	$ 6.00	$ 30.00
MANLIFT, SIDEWALK ELEVATOR, DUMBWAITER, MOVING STAIRWAYS, MOVING SIDEWALKS - Per unit Escalator	$ 35.00 $ 21.00	

Sidewalk Elevator, Dumbwaiter Manlift, per floor	$ 5.50	$ 30.00
AUTO LIFTS - Per unit	$ 20.00	
WORKMENS HOIST - Per floor	$ 5.50	$ 30.00
MISCELLANEOUS HOISTING AND ELEVATING EQUIPMENT	$ 20.00	
REFRIGERATION SYSTEM Up to 10 tons Over 10 tons to 25 tons Over 25 tons to 100 tons Over 100 tons to 300 tons Over 300 tons to 1000 tons Over 1000 tons	$2.00/ton $ 28.00 $ 50.00 $ 63.00 $ 77.00 $112.00	$ 7.00
VENTILATION SYSTEMS 2,000 cfm TO 15,000 cfm Over 15,000 cfm	$ 20.00 $ 35.00	
EXHAUST HOODS/ SYSTEMS Up to 5,000 cfm	$ 20.00 $ 35.00	

Over 5,000 cfm		
BOILERS-LOW PRESSURE - per boiler Without Manhole With Manhole	$ 10.00 $ 17.00	
BOILERS-HIGH PRESSURE - per boiler Without Manhole With Manhole	$ 17.00 $ 28.00	
FIRE/ SMOKE DAMPERS - first damper - each additional	$ 15.00 $ 10.00	
PRESSURE VESSELS - per unit Without Manhole With Manhole	$ 10.00 $ 17.00	

106.5.4 Fees for abandoned work or revoked permit. Fees shall not be waived or refunded for any mechanical permit that has been abandoned, canceled or revoked.

SECTION 107
INSPECTIONS AND TESTING

107.1 Required inspections and testing. All equipment for which a permit is obtained under this code shall be inspected and approved. Any portion of equipment intended to be concealed by any permanent portion of the structure shall not be concealed until inspected. The code official shall have the authority to require any concealment to be removed. Failure to comply with this order of the code official may result in condemnation of the structure or any part thereof and prohibition of occupancy. When installation of any equipment is complete, a final inspection shall be made. Equipment regulated by this code shall not be connected to the fuel or power supply and placed in normal operation until such equipment complies with all applicable requirements of this code, and a final inspection has been completed.

The requirements above shall not be considered to prohibit the operation of any heating equipment installed to replace existing heating equipment serving an occupied portion of a structure in the event a request for inspection of such heating equipment has been filed with the department not more than 48 hours after replacement work is completed, and before any portion of such equipment is concealed by any permanent portion of the structure.

Upon completion of the mechanical work and before final approval is given, a final inspection shall be made. All violations of any code, any approved construction document or the mechanical permit shall be noted, and the holder of the mechanical permit shall be notified of the discrepancies. All violations shall be abated before final approval.

107.1.1 Approved inspection agencies. The code official shall accept reports of approved inspection agencies, provided such agencies satisfy the requirements as to qualification and reliability.

107.1.2 Evaluation and follow-up inspection services. Prior to the approval of a closed, prefabricated mechanical system and the issuance of a mechanical permit, the code official, if deemed necessary, shall require the submittal of an evaluation report on each prefabricated mechanical system, indicating the complete details of the mechanical system, including a description of the mechanical system and its components, the basis upon which the mechanical system is being evaluated, test results and similar information, and other data as necessary for the code official to determine conformance to this code.

107.1.2.1 Evaluation service. The code official shall designate the evaluation service of an approved agency as the evaluation agency, and review such agency's evaluation report for adequacy and conformance to this code.

107.1.2.2 Follow-up inspection. Except where ready access is provided to mechanical systems, service equipment and accessories for complete inspection at the site without disassembly or dismantling, the code official shall conduct the in-plant inspections as frequently as necessary to assure conformance to the approved evaluation report or shall designate an independent, approved inspection agency to conduct such inspections. The inspection agency shall furnish the code official with the follow-up inspection manual and a report of inspections upon request, and the mechanical system shall have an identifying label permanently affixed to the system indicating that factory inspections have been performed.

107.1.2.3 Test and inspection records. All required test and inspection records shall be available to the code official at all times during the fabrication of the mechanical system and the erection of the building; or such records as the code official designates shall be filed.

107.2 Testing. Mechanical systems shall be tested as required in this code and in accordance with Sections 107.2.1 through 107.2.3. Tests shall be made by the permit holder and observed by the code official.

107.2.1 New, altered, extended or repaired systems. New mechanical systems and parts of existing systems, which have been altered, extended or repaired shall be tested as prescribed herein to disclose leaks and defects.

107.2.2 Equipment, material and labor for tests. Equipment, material and labor required for testing a mechanical system or part thereof shall be furnished by the permit holder.

107.2.3 Reinspection and testing. Where any work or installation does not pass an initial test or inspection, the necessary corrections shall be made so as to achieve compliance with this code. The work or installation shall then be resubmitted to the code official for inspection and testing.

107.3 Contractor’s responsibilities. It shall be the responsibility of every contractor who enters into contracts for the installation or repair of mechanical systems for which a permit is required to comply with adopted federal, state and local rules and regulations concerning certification and licensing.

107.4 Coordination of inspections. Whenever in the enforcement of this code or another code or ordinance, the responsibility of more than one code official is involved, it shall be the duty of the code officials involved to coordinate their inspections and administrative orders as fully as practicable so that the owners and occupants of the structure shall not be subjected to visits by numerous inspectors or multiple or conflicting orders. Whenever an inspector from any agency or department observes an apparent or actual violation of some provision of some law, ordinance or code not within the inspector's authority to enforce, the inspector shall report the findings to the code official having jurisdiction.

107.4.1 Legal compliance. All legal assistance necessary to effect compliance of the mechanical systems of such premises with this section shall be supplied to the code official by the City Counselor and other City of Saint Louis agencies. The Fire and Police Departments of the City of Saint Louis shall, upon request, assist the code official in the enforcement of this code.

107.5 Approval. After the prescribed tests and inspections indicate that the work complies in all respects with this code, all equipment subject to annual inspection shall be identified by a tag bearing the city identification number and, where applicable, a sticker denoting approval shall be applied to all other equipment.

107.6 Temporary connection. The code official shall have the authority to authorize the temporary connection of a mechanical system to the sources of energy for the purpose of testing mechanical systems or for use under a temporary certificate of occupancy.

107.7 Moved structures. Before any structure that has been moved within or into the City of Saint Louis is occupied, all mechanical equipment and devices shall be inspected and tested for safe operation and compliance with the requirements of this code.

Exception: Mechanical systems within manufactured units bearing certification of the Missouri Public Service Commission.

SECTION 108
VIOLATIONS

108.1 Unlawful acts. It shall be unlawful for any person, firm or corporation to erect, construct, alter, repair, remove, demolish or operate mechanical equipment regulated by this code, or cause same to be done, in conflict with or in violation of any of the provisions of this code. All work shall be conducted, installed and completed in a workmanlike and approved manner so as to secure the results intended by this code.

108.2 Notice of violation. The code official shall serve a written notice of violation or order to the person, firm or corporation responsible for the erection, installation, alteration, extension, repair, removal, demolition or operation of mechanical equipment or systems in violation of the provisions of this code, or in violation of a detailed statement, or the approved construction documents thereunder, or in violation of a permit issued under the provisions of this code. Such order shall direct the discontinuance of the illegal action or condition and the abatement of the violation.

108.3 Prosecution of violation. If the notice of violation is not complied within the time stated in the Notice of Violation, but no longer than thirty days, the code official shall request the legal counsel of the City of Saint Louis to institute the appropriate proceedings at law or in equity to restrain, correct or abate such violation, or to require the removal or termination of the unlawful occupancy of the structure in violation of the provisions of this code or of the order or direction made pursuant thereto. The time for compliance may be extended by the code official, upon written request, if there are extenuating circumstances.

108.4 Violation penalties. Any person, partnership or corporation who shall violate a provision of this code or shall fail to comply with any of the requirements thereof or who shall erect, construct, alter or repair mechanical equipment or systems in violation of the approve construction documents or directive of the code official, or of a permit or license issued under the provisions of this code, shall, upon conviction thereof, be penalized as set forth in SECTION FOUR.

108.5 Stop work orders. Upon notice from the code official that mechanical work is being done contrary to the provisions of this code or in a dangerous or unsafe manner, or without permit, such work shall immediately cease. Such notice shall be in writing and shall be given to the owner of the property involved, or to the owner's agent, or to the person doing the work. The stop work order shall state the conditions under which work is authorized to resume. Where an emergency exists, the code official shall not be required to give a written notice prior to stopping the work. Any person who shall continue any work on the system after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe conditions, shall be subject to immediate arrest and, upon convicted thereof, be penalized as set forth in SECTION FOUR.

108.6 Abatement of violation. The imposition of the penalties herein prescribed shall not preclude the legal officer of the City of Saint Louis from instituting appropriate action to prevent unlawful construction or to restrain, correct or abate a violation, or to prevent illegal occupancy of a building, structure or premises, or to stop an illegal act, the conduct of business or operation of mechanical equipment or systems on or about any premises.

108.7 Unsafe mechanical systems. A mechanical system that is unsafe, constitutes a fire hazard, or is otherwise dangerous to human life, as regulated by this code, is hereby declared as an unsafe mechanical system. Use of a mechanical system regulated by this code constituting a hazard to health, safety or welfare by reason of inadequate maintenance, dilapidation, fire hazard, disaster, damage or abandonment is hereby declared an unsafe use. Such unsafe equipment is hereby declared to be a public nuisance and shall be abated by repair, rehabilitation, demolition or removal.

108.7.1 Authority to condemn mechanical systems. Whenever the code official determines that any mechanical system, or portion thereof, regulated by this code has become hazardous to life, health, property, or has become insanitary, the code official shall order in writing that such system either be removed or restored to a safe condition. A time limit for compliance with such order shall be specified in the written notice. A person shall not use or maintain a defective mechanical system after receiving such notice.

When such mechanical system is to be disconnected, written notice as prescribed in Section 108.2 shall be given. In cases of immediate danger to life or property, such disconnection shall be made immediately without such notice.

Fuel-fired or electrically supplied heating or cooling appliances or equipment shall not be removed from any structure to be demolished until the service supplied to the structure for such equipment has been terminated by the utility company.

108.7.2 Authority to order disconnection of energy sources. The code official shall have the authority to order disconnection of energy sources supplied to a building, structure or mechanical system regulated by this code, when it is determined that the mechanical system or any portion thereof has become hazardous or unsafe. Written notice of such order to disconnect service and the causes therefor shall be given within twenty-four hours to the owner and occupant of such building, structure, or premises, provided, however, that in cases of immediate danger to life or property, such disconnection shall be made immediately without such notice. Where energy sources are provided by a public utility, the code official shall immediately notify the serving utility in writing of the issuance of such order to disconnect.

108.7.3 Connection after order to disconnect. A person shall not make energy source connections to mechanical systems regulated by this code which have been disconnected or ordered to be disconnected by the code official until the code official, or the use of which has been ordered to be discontinued by the code official until the code official authorizes the re-connection and use of such mechanical systems.

When a mechanical system is maintained in violation of this code, and in violation of a notice issued pursuant to the provisions of this section, the code official shall institute appropriate action to prevent, restrain, correct or abate the violation.

SECTION 109
MEANS OF APPEAL

109.1 Appeals. Any person aggrieved by the decision of the code official, or any Board hereunder, may appeal said decision to the Board of Building Appeals in the manner prescribed in Section 121.0 of the

Building Code. The fee for said appeal is as prescribed in said Building Code.

SECTION 110
BOARD OF STATIONARY ENGINEERS

110.1 General. There is hereby established a Board of Stationary Engineers. The Board shall act in an advisory capacity to the code official in the preparation of rules and regulations regarding installation, use and operation of boilers, steam generators and pressure vessels consistent with the provisions of this code.

110.1.1 Composition of board. The Board of Stationary Engineers shall be composed of three members, one member who shall be the code official or duly authorized representative and two other members who shall be appointed by the Director of Public Safety.

The two members appointed by the Director of Public Safety shall be engineers licensed by the City of Saint Louis under the provisions of this section as Class I licensed Stationary Engineers, with a minimum of five years experience in the operation and maintenance of steam engines, steam boilers or steam turbines. The Board shall elect their own chairman.

110.1.2 Duties of the board. The Board of Stationary Engineers shall give examinations to all applicants for Stationary Engineer's licenses, issue Boiler Operator Certificates of Competency or Stationary Engineer's Licenses to those who pass their respective tests, suspend or revoke such certificate or license for failure to maintain the standards imposed by this section of the code, and may order the reinspection of any boiler, steam generator or pressure vessel whenever deemed necessary for public safety.

110.2 Board sessions. The Board of Stationary Engineers shall provide for regular meetings and the code official shall act as the secretary to the Board and shall keep the minutes of all proceedings. The Board shall convene for business at least once a month, and at such additional times as the chairman shall designate, to conduct the business of the Board. A majority of the members of the Board of Stationary Engineers shall constitute a quorum. The Secretary shall keep a register of the names and addresses of all successful applicants designating those found to be qualified for the various classes provided herein.

110.3 Rules and regulations. The Board of Stationary Engineers shall have the power to adopt such rules and regulations consistent with this section as it may deem necessary for the application of the provisions of this section. Such rules and regulations shall become effective upon approval by the majority of the Board, and shall be on file in the office of the code official, and shall be available to the public upon request.

110.4 Boiler operator certificate of competency. The operation of boilers or steam generators which are generating saturated steam in a pressure range of fifteen psig minimum to one hundred and fifty psig maximum each of which boilers has not more than one hundred square feet of rated heating surface shall be at all times in the charge of a certified Boiler Operator. Application for a Boiler Operator's Certificate of Competency is to be made to the code official or duly authorized representative. The code official upon finding that the applicant is thoroughly familiar with the operational principles which concern the safety and care of the boiler or steam generator, shall issue to such applicant a Boiler Operator Certificate of Competency. The certificate is issued for work at a single specific location as designated on the application and is not transferable. The fee for the examination shall be as listed in Table 110.9.

110.5 Licensing of stationary engineers required. All Stationary Engineers shall be licensed as to the class as set forth in sections 110.5.1 through 110.5.4.

110.5.1 Licensing of operators of boilers or steam generators, less than 1500 square foot of heating surface. Any boiler or steam generator which has not more than 1500 square feet of rated heating surface, and which is rated to generate steam at pressures between fifteen psig and three hundred psig maximum or which is rated to generate hot water above 160 psig and 250^{o}F to 300 psig, and associated equipment, shall be in the charge of an attending Class II or a Class I licensed Stationary Engineer, whenever in operation. Square footage shall be determined by the total input to a single header.

110.5.2 Licensing of operators of boilers or steam generators in excess of 1500 square feet of heating surface. Any boiler or steam generator producing saturated or superheated steam above 212^{o}F in excess of fifteen psig having a rated heating surface in excess of one thousand five hundred square feet of hot water or any other liquid as defined in this code, or any boiler or steam generator producing saturated or superheated steam or any high temperature liquid above 212^{o}F in excess

of three hundred psig, regardless of rated heating surface, and any steam engine or steam turbine, associated with either of the said boilers or steam generators shall be in the charge of an attending Class I licensed Stationary Engineer, whenever in operation. Square footage shall be determined by the total input to a single header.

110.5.3 Licensing of operators of ammonia systems from 50 to 100 tons. Any ammonia system totaling between fifty tons and one hundred tons rated capacity shall be in the charge of an attending Class I or Class II licensed Stationary Engineer where located in any and all buildings, whenever in operation.

110.5.4 Licensing of operators of ammonia systems 100 tons and over. Any ammonia system totaling one hundred tons or more rated capacity shall be in the charge of an attending Class I licensed Stationary Engineer where located in any and all buildings, whenever in operation.

110.6 Stationary engineer's license applications. The application for all classes of licenses shall be filed with the Secretary of the Board on the form prescribed by the Board of Stationary Engineers. Within a reasonable time, the Board shall examine all applicants who meet qualifications under Sections 110.6.1 thru 110.6.3 for the various classes of licenses in order to ascertain whether the applicants possess the knowledge, skill, ability and competency required for the class of license applied for, and for safe operation of various equipment. The Board shall issue to such applicants a license upon the Board finding that the applicant possesses the necessary qualifications and has successfully passed the required examination for the type of license sought.

110.6.1 Qualifications for stationary engineer, class I. All applicants for a Class I Stationary Engineer's License shall be a citizen of the United States, shall have made application for such citizenship, or shall be authorized to hold employment by the Immigration and Naturalization Service. The applicant shall be at least twenty-one years of age and shall have had at least two years of training under a Class I licensed Stationary Engineer or equivalent training, or shall be registered with the Missouri State Board of Registration for Architects and Professional Engineers as an Engineer or as an Engineer in Training, and shall have been actually employed in the engineering or research division of a power generating plant in an engineering capacity for a minimum of twelve months. The Board may accept twelve months of formal training by a nationally recognized agency in lieu of experience. The applicant shall demonstrate

their knowledge, skill, ability and competency to the Board to operate boilers or steam generators of any size or capacity rating which are generating saturated or superheated steam at any pressure in excess of fifteen psig, or hot water or any other liquid as defined in this code, and ammonia systems in excess of one hundred tons capacity, and to operate associated power plant components and auxiliaries, such as steam turbines, engines, air compressors, ammonia systems, pumps, and feed water heaters, electric generators and other equipment.

110.6.2 Qualifications for stationary engineer, class II. All applicants for a Class II Stationary Engineer's License shall be a citizen of the United States, shall have made application for such citizenship, or shall be authorized to hold employment by the Immigration and Naturalization Service and shall be at least nineteen years of age. The applicant shall have had at least one year's experience in the operations of steam boilers or steam generators under the supervision of a Class I or Class II Stationary Engineer or equivalent training, or shall have had one year's experience in maintenance work on steam boilers, steam generators and/or steam engines or steam turbines and/or ammonia systems in excess of fifty tons capacity or shall be registered with the Missouri State Board of Registration for Architects and Professional Engineers as an Engineer or as an Engineer in Training. The Board may accept twelve months of formal training by a nationally recognized agency in lieu of experience. The applicant shall demonstrate their knowledge, skill, ability and competency to the Board to operate boilers or steam generators which have not more than one thousand five hundred square feet of rated heating surface and which are generating saturated or superheated steam in a pressure range of fifteen psig minimum to three hundred psig maximum, or hot water or any other liquid as defined in this code and to operate associated compressors, ammonia compressors, pumps, and feed water heaters, electric generators and other equipment.

110.6.3 Qualifications for Stationary Engineer, Class II Restricted. The Board of Stationary Engineers shall be permitted to license applicants for a Stationary Engineer's License as Class II Restricted Stationary Engineers upon finding that the applicant is thoroughly familiar with the operating principals which concern the safety and care of the boiler or steam generator. The Class II Restricted Stationary Engineer's License is issued for work at a specific location as designated on the application and is not transferable.

110.7 Examination (all classes) for stationary engineers. The examination for a Class II Stationary Engineer's License shall be oral. The examination for Class I Stationary Engineer's License shall be both oral and written, provided that the applicant shall attain a predetermined percentage as set by the Board of Stationary Engineers in the written examination before the applicant becomes eligible for the oral examination. The written examination must be completed within six months from the date of application. If the applicant does not pass either the oral or written examination the applicant shall wait ninety days before filing a new application.

110.8 Temporary operation by unlicensed persons. In cases of emergency, and with the approval of the code official, an owner or steam user may appoint a trustworthy experienced person, familiar with the operation of the plant, as a temporary operator in plants where licensed operators are required by this code.

110.8.1 Permit to operate. Before a designated person can operate the plant, the code official or duly appointed representative, shall be notified. An inspection of the plant shall be made to determine the fitness of the appointed operator. If such person is found to be fit, a permit shall be issued by the code official for such person to operate the plant on a temporary basis; such permit shall be issued for no longer than thirty days. After issuance of the permit, inspection of the plant thereafter shall be on a daily basis as long as the operator remains in the temporary classification. An inspection fee shall be charged per inspection to the owner or steam user payable upon receipt of bill; total cost to be determined at the conclusion of the daily inspections. See Table 110.9 for fee schedule.

110.8.2 Application for license. Within three working days after permission is granted, the designated operator shall make application to the Board of Stationary Engineers for examination for the class license required for the plant. Application and examination shall be in accordance with the provisions of section 110.6. In the case of a Class I examination the applicant shall complete the written portion of the examination within fourteen days. Both written and oral parts of the examination shall be completed so that the applicant's qualifications for licensing shall be determined within the thirty day period of emergency operation. If the Board of Stationary Engineers determine that the applicant has failed the examination, the applicant's permit to operate on a temporary basis shall be revoked immediately and such person shall

not be eligible for reappointment as a temporary operator until the examination has been passed.

110.9 Licenses and fees. At the time of the filing of the application, each applicant for a Boiler Operator Certificate of Competency or Stationary Engineer's License, shall pay to the Secretary of the Board of Stationary Engineers a filing fee as set forth in Table 110.9, to cover the cost of the examination given under the provisions of this section. Provided, further, that under no conditions shall said sum, or any part thereof, be refunded if the applicant fails to pass the examination or if the applicant fails to complete the written examination within the prescribed time limit as set by the Board of Stationary Engineers. All monies received by the secretary shall be paid to the City Treasurer. All applicants passing the examination for a Class I or Class II Stationary Engineer's License shall be presented, upon the passage of such examination, with a Stationary Engineer's License for the class for which they have been licensed. All licenses shall be issued for a period of one year from the date of issuance and shall be renewed each year. The fee for licenses renewal shall be as specified in Table 110.9.

TABLE 110.9

LICENSE FEES

BOARD OF STATIONARY ENGINEERS

ITEM	FEE	DURATION	REMARKS AND REQUIREMENTS
STATIONARY ENGINEER'S LICENSE			
Examination and Application Fee			
Class I	$ 15.00	1 year	
Class II	$ 15.00	1 year	
Renewal Fee	$ 15.00		

Class I Class II	$ 10.00		
BOILER OPERATORS CERTIFICATE OF COMPETENCY Examination Fee Renewal	$ 8.00 $ 8.00	1 year	Includes initial certification Issued for one year from date
TEMPORARY BOILER PLANT OPERATOR Permit - per day	$100.00		Issued for up to 30 days

110.9.1 License to be displayed. At all times when boilers, steam generators or associated equipment are in use and are operating, there shall be in charge and attendance a licensed Stationary Engineer of the class designated in Sections 110.5.1 thru 110.5.4. The license shall be displayed in some prominent place where the boilers, steam generators and associated equipment are in use and any licensed Stationary Engineer shall be negligent in the performance of their duties, should they fail to display the license or have an invalid license on display while in attendance of boilers, steam generators and associated equipment in their charge and in operation.

110.9.2 Renewal. Boiler Operator Certificates of Competency and Stationary Engineer's Licenses shall be renewed annually by the Board of Stationary Engineers upon payment of an annual renewal fee. The Board of Stationary Engineers shall have the power to revoke such certificate or license for cause.

110.9.3 Notice of change of employment. Every Stationary Engineer or Boiler Operator regulated under the provisions of this section is required

to notify the Secretary of the Board of Stationary Engineers, within forty-eight hours thereafter, when they accept or leave employment as a Stationary Engineer or Boiler Operator and to submit the name of their new employer.

110.10 Penalty. Any owner or steam user of a boiler, steam generator or associated equipment who shall neglect or refuse to employ a licensed Stationary Engineer of the class designated in Section 110.5, or who allows any unlicensed person to be in charge and attendance of boilers, steam generator or associated equipment requiring a licensed Stationary Engineer, except as provided for in section 110.8, shall, upon conviction thereof, be penalized as set forth in SECTION FOUR.

110.10.1 Penalty for violation by operators. Any licensed Class II Stationary Engineer or certified Boiler Operator who shall be in charge and attending the operation of a boiler, steam generator or associated equipment in excess of the legal size and capacity, shall. upon conviction thereof, be penalized as set forth in SECTION FOUR. In addition to such fine, the License of such Stationary Engineer or the Certificate of Competency of the Boiler Operator shall be suspended for a period not to exceed ninety days or revoked as determined by the Board of Stationary Engineers.

110.10.2 Suspension of license. The Board of Stationary Engineers shall order the suspension for not exceeding ninety days, or revocation of a Stationary Engineer License or Boiler Operator Certificate of Competency of any person regulated under the provisions of this section where the Board, after a public hearing, finds that the licensee is addicted to drugs or alcohol, or was under the undue influence of drugs or alcohol while in attendance and performing their duties as a licensed Stationary Engineer or certified Boiler Operator, or has been negligent in the performance of their duties while in attendance of the equipment for which they are licensed so as to endanger the lives and property of persons in the immediate area of such equipment; provided further that such person shall be given a ten day notice of the time and place of such hearing. Such person may be represented by counsel at such hearing before such Board. The Board of Stationary Engineers, at their discretion, may order a new examination for applicants for reinstatement of a license or certificate suspended or revoked under the provisions of this section.

The Board of Stationary Engineers shall also order the suspension for a period not to exceed thirty days, of the Stationary Engineer's License or Boiler Operator Certificate of Competency of any person licensed under the provisions of this section, where the Board, after a public hearing, shall find that the licensee has failed to comply with the provisions of this section. Such person shall be given a ten day notice of such hearing and may be represented by counsel at such hearing.

110.11 Failure to comply. Any owner or steam user who fails to comply with the above provisions of this code shall be in violation of this code and the code official shall and is hereby directed to consider the plant unsafe and officially seal the plant out of service.

Change Section 201.3 to read as follows:

> 201.3 Terms defined in other codes. Where terms are not defined in this code and are defined in the building code, electrical code, fire code, International Fuel Gas Code or the plumbing code, such terms shall have meanings ascribed to them as in those codes.

Modify Section 202 by the alteration of the following definitions:

> BASE FLOOD ELEVATION. A reference point, determined in accordance with the building code, based on the depth or peak elevation of flooding, including wave height, which has a 1 percent (100-year flood) or greater chance of occurring in any given year.
>
> BUILDING CODE. The building code adopted by the City of St. Louis.
>
> ELECTRICAL CODE. The electrical code adopted by the City of St. Louis.
>
> FIRE CODE. The fire code adopted by the City of St. Louis.
>
> FLEXIBLE AIR CONNECTOR. A flexible air duct not having certain flame penetration, puncture and impact tests.

FLEXIBLE AIR DUCT. A flexible air duct tested in accordance with Underwriters Laboratory's Standard for Factory made Duct Materials, UL-181, and installed in accordance with the conditions of its UL listing. Separate installation limitations for flexible air connectors and flexible air ducts are identified in NFPA Standard 90A.

HAZARDOUS LOCATION. Any location considered to be a fire hazard for flammable vapors, dust, combustible fibers or other highly combustible substances. The location is not necessarily categorized in the building code as a high-hazard use group classification.

PLUMBING CODE. The plumbing code adopted by the City of St. Louis.

PORTABLE COOKING APPLIANCE. A single non-permanent cooking appliance (not attached with screws, clamps or other fastening devices) which is electrically cord and plug connected and/or gas-fired using listed and labeled gas convenience outlets used in conjunction with listed and labeled gas appliance connectors. A portable cooking appliance shall be counter- or table-top mounted; shall be less than 2 feet (610 mm) in any dimension; and shall weigh less than 100 pounds (454 kg). The owner or operator of a portable cooking appliance shall be able to provide the Mechanical Inspection Section with manufacturer's information documenting the above information.

SAFETY VALVE. A valve that relieves pressure in a closed system by opening fully at the rated discharge pressure. The valve is of the spring-pop type.

WORKMANLIKE. Executed in a skilled manner, e.g., generally plumb, level, square, in line, undamaged and without marring adjacent work.

Change Section 301.2 to read as follows:

301.2 Energy Utilization. Heating, ventilating and air-conditioning systems of all structures shall be designed and

installed for efficient utilization of energy in accordance with Chapter 13 of the building code.

Change Sections 301.7 and 301.8 to read as follows:

301.7 Electrical. Electrical wiring, controls and connections to equipment and appliances regulated by this code shall be in accordance with the electrical code.

301.8 Plumbing connection. Potable water supply and building drainage system connections to equipment and appliances regulated by this code shall be in accordance with the plumbing code.

Change Section 301.12 to read as follows:

301.12 Wind resistance. Mechanical equipment, appliance and supports that are exposed to wind shall be designed and installed to resist the wind pressures determined in accordance with the building code.

Change Section 301.13 to read as follows:

301.13 Flood hazard. For structures located in a special flood-hazard area, mechanical systems shall comply with the flood-resistant construction requirements of the building code.

Change Section 301.15 to read as follows:

301.15 Rodent proofing. Buildings or structures and the walls enclosing habitable or occupiable rooms and spaces in which persons live, sleep or work, or in which feed, food or foodstuffs are stored, prepared, processed, served or sold, shall be constructed to protect against the entrance of rodents in accordance with the building code.

Change Section 301.16 to read as follows:

301.16 Seismic resistance. When earthquake loads are applicable in accordance with the building code,

mechanical system supports shall be designed and installed for the seismic forces in accordance with the building code.

Add Section 301.17 to read as follows:

301.17 Annual Inspections. All mechanical equipment shall be inspected annually by the code official. Satisfactory conditions shall be denoted by the attachment of an approval sticker to the equipment.

Exceptions:

1. Mechanical equipment in Use Group R-3,

2. Refrigeration equipment of less than 15 tons capacity

3. Kitchen exhaust equipment.

Change Section 302.1 to read as follows:

302.1 Structural safety. The building or structure shall not be weakened by the installation of mechanical systems. Where floors, walls, ceiling or any other portion of the building or structure are required to be altered or replaced in the process of installing or repairing any system, the building or structure shall be left in a safe structural condition in accordance with the building code.

Change Section 302.2 to read as follows:

302.2 Penetrations of floor/ceiling assemblies and fire-resistance-rated assemblies. Penetrations of floor/ceiling assemblies and assemblies required to have a fire-resistance rating shall be protected in accordance with the building code.

Add Section 302.5 to read as follows:

302.5 Stud Guards. When the edge of bored holes is less than one inch (25 mm) from the edge of a stud or joist, and

when notched studs or joists are covered, stud guards shall be installed to protect service lines from fastener damage.

Change Section 303.3 to read as follows:

303.3 Prohibited Locations. Fuel-fired appliances shall not be located in, or obtain combustion air from, any of the following rooms or spaces:

1. Sleeping rooms.

2. Bathrooms.

3. Toilet rooms.

4. Storage closets.

5. Surgical rooms.

Exception: This section shall not apply to the following appliances:

1. Direct-vent appliances that obtain all combustion air directly from the outdoors.

2. Solid fuel-fired appliances and fireplaces, provided that the room is not a confined space and the building is not of unusually tight construction.

3. Appliances installed in a dedicated enclosure in which all combustion air is taken directly from the outdoors, in accordance with Section 703. Access to such enclosure shall be through a solid door, weather stripped in accordance with the exterior door air leakage requirements of Chapter 13 of the building code and equipped with an approved self-closing device.

Change Section 303.5 to read as follows:

303.5 Indoor locations. Fuel fired furnaces and boilers installed in closets and alcoves shall be listed for such installation. For purposes of this section, a closet or alcove shall be defined as a room or space having a volume less than 12 times the total volume of fuel-fired appliances other than boilers and less than 16 times the total volume of boilers. Room volume shall be computed using the gross floor area and the actual ceiling height up to a maximum computation height of 8 feet (2438 mm). Closets used for the installation of fuel-fired appliances shall not be used for storage.

Change Section 303.7 to read as follows:

303.7 Pit locations. Appliances installed in pits or excavations shall not come in direct contact with the surrounding soil. The sides of the pit or excavation shall be held back a minimum of 12 inches (305 mm) from the appliance except where additional space is required for servicing or maintenance. Where the depth exceeds 12 inches (305 mm) below adjoining grade, the walls of the pit or excavation shall be lined with concrete or masonry extending a minimum of 4 inches (102 mm) above adjoining grade having sufficient lateral load bearing capacity to resist collapse. The appliance shall be protected from flooding in an approved manner.

Change Section 304.5 to read as follows:

304.5 Private garages. Appliances located in private garages shall be installed with a minimum clearance of 8 feet (2439 mm) above the finish floor.

Exception: The requirements of this section shall not apply where the appliances are protected from motor vehicle impact and installed in accordance with Section 304.3 and NFPA 88B.

Change Section 304.6 to read as follows:

304.6 Construction and Protection. Boiler rooms and furnace rooms shall be protected as required by the building code.

Change Section 304.9 to read as follows:

304.9 Guards. Guards shall be provided where appliances, equipment, fans or other components that require service are located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The top of the guard shall be located not less than 42 inches (1067 mm) above the elevated surface adjacent to the guard. The guard shall be constructed so as to prevent the passage of a 21-inch-diameter (533 mm) sphere and shall comply with the loading requirements for guards specified in the building code.

Add Section 304.11 to read as follows:

304.11 Equipment guards. Pulleys, belts, gears and similar equipment shall be protected by an approved guard.

Change Section 306.1.1 to read as follows:

306.1.1 Central furnaces. Central furnaces within compartments or alcoves shall have a minimum working space clearance as specified by the manufacturer but not less than 3 inches (76 mm) along the sides, back and top with a total width of the enclosing space being at least 12 inches (305 mm) wider than the furnace. Furnaces having a firebox open to the atmosphere shall have at least 6 inches (152 mm) working space along the front combustion chamber side. Combustion air openings at the rear or side of the compartment shall comply with the requirements of Chapter 7.

Exception: This section shall not apply to appliances installed in existing compartments and alcoves where the working space clearances are in accordance with the equipment or appliance manufacturer’s installation instructions.

Change Section 306.3 to read as follows:

306.3 Appliances in attics. Attics containing appliances requiring access shall be provided with an opening and unobstructed passageway large enough to allow removal of the largest appliance, but not less than 30 inches (762 mm) high and 30 inches (762 mm) wide and not more than 20 feet (6096 mm) in length when measured along the centerline of the passageway from the opening to the appliance. The passageway shall have continuous solid flooring not less than 24 inches (610 mm) wide. A continuous level service space at least 30 inches (762 mm) deep and 30 inches (762 mm) wide shall be present at the front or service side of the appliance. The clear access opening dimensions shall be a minimum of 22 inches by 30 inches (559 mm by 762 mm), where such dimensions are large enough to allow removal of the largest appliance.

Exception: The passageway and level service space are not required where the appliance is capable of being serviced and removed through the required opening.

Change Section 306.3.1 to read as follows:

306.3.1 Electrical requirements. A lighting fixture controlled by a switch located at the required passageway opening and a receptacle outlet shall be provided at or near the appliance location in accordance with the electrical code.

Change Section 306.4 to read as follows:

306.4 Appliances under floors. Underfloor spaces containing appliances requiring access shall be provided with an access opening and unobstructed passageway large enough to remove the largest appliance. The passageway shall not be less than 30 inches (762 mm) high and 30 inches (762 mm) wide and not more than 20 feet (6096 mm) in length when measured along the centerline of the passageway from the opening to the appliance. A level service space not less than 30 inches (762 mm) deep and 30 inches (762 mm) wide shall be present at the front or

service side of the appliance. If the depth of the passageway or the service space exceeds 12 inches (305 mm) below the adjoining grade, the walls of the passageway shall be lined with concrete or masonry. Such concrete or masonry shall extend a minimum of 4 inches (102 mm) above the adjoining grade and shall have sufficient lateral-bearing capacity to resist collapse. The clear access opening dimensions shall be a minimum of 22 inches by 30 inches (559 mm by 762 mm), where such dimensions are large enough to allow removal of the largest appliance.

Exception: The passageway is not required where the level service space is present when the access is open and the appliance is capable of being serviced and removed through the required opening.

Change Section 306.4.1 to read as follows:

306.4.1 Electrical requirements. A lighting fixture controlled by a switch located at the required passageway opening and a receptacle outlet shall be provided at or near the appliance location in accordance with the electrical code.

Add Sections 306.5.1 thru 306.5.3.

306.5.1 Outside ladders. Permanent or portable outside ladders may be provided on the inside or outside of single story buildings not over twenty feet in height. All other means of access shall be a permanent or fold-away inside stairway or ladder with railings, terminating in an enclosure, scuttle or trap door. Such scuttles or trap doors shall be at least thirty inches in the smallest dimension and shall open easily and safely under all conditions, especially snow, and shall be constructed so as to permit access from the roof side, unless deliberately locked from the inside. At least six feet clearance shall be available between the access opening and the edge of a roof or similar hazard. Otherwise rigidly fixed rails or guards at least three feet in height shall be provided on the exposed side, except that

parapets at least three feet in height may be utilized in lieu of guards or rails.

306.5.2 Catwalks. For elevated structures, level catwalks not less than twenty-four inches wide shall be provided from the roof access to every required working platform at the appliance. Catwalks with slope greater than three inches to twelve inches shall be provided with substantial cleats spaced not more than sixteen inches apart. The down slope side of catwalks on pitched roofs shall be provided with minimum thirty-six inch high handrails.

306.5.3 Electrical requirements. A receptacle outlet shall be provided at or near the appliance location in accordance with the electrical code.

Change Section 306.6 to read as follows:

306.6 Roof access. Every appliance located on a roof of a building shall be installed on a level platform. Whenever the roof has a slope greater than three units measured vertically to twelve units measured horizontally, a level working platform not less than thirty inches (762 mm) in depth shall be provided on each down slope side of the appliance. All sides of any working platform shall be protected by a substantial railing thirty-six inches (914 mm) in height with vertical rails not more than twenty-one inches (533 mm) apart, except that parapets at least thirty-six inches (914 mm)in height may be utilized in lieu of rails or guards. Scuttles located on other than the roof incline side of the equipment unit shall have their lids or trap doors hinged on the low side of the scuttle. Such lids or trap doors shall be equipped with means to ensure an opening radius of not less than ninety degrees nor more than one hundred (100) degrees from the closed position. Scuttle lids or trap doors and hardware, when opened, shall be capable of withstanding a three hundred pound lateral load from the roof incline side.

Change Section 307.2.3 to read as follows:

307.2.3 Auxiliary and secondary drain systems. In addition to the requirements of Section 307.2.1, a secondary or auxiliary drain pan shall be required for each cooling or evaporator coil where damage to any building components will occur as a result of overflow from the equipment drain pan or stoppage in the condensate drain piping. One of the following methods shall be used:

1. An auxiliary drain pan with a separate drain shall be provided under the coils on which condensation will occur. The auxiliary pan drain shall discharge to a non-concealed point of disposal to alert occupants in the event of a stoppage of the primary drain. The pan shall have a minimum depth of 1 inches (38 mm), shall not be less than 3 inches larger than the unit or the coil dimensions in width and length and shall be constructed of corrosion-resistant material. Metallic pans shall have a minimum thickness of not less than 0.0276-inch (0.7 mm) galvanized sheet metal. Non-metallic pans shall have a minimum thickness of not less than 0.0625 inch (1.6 mm). Pans shall be supported to ensure proper drainage.

2. A separate overflow drain line shall be connected to the drain pan provided with the equipment. Such overflow drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The overflow drain line shall connect to the drain pan at a higher level than the primary drain connection.

3. An auxiliary drain pan without a separate drain line shall be provided under the coils on which condensate will occur. Such pan shall be equipped with a water-level detection device that will shut off the equipment served prior to overflow of the pan. The auxiliary

drain pan shall be constructed in accordance with Item 1 of this section.

Change Section 307.2.4 to read as follows:

307.2.4 Traps. Primary condensate drains shall be trapped as required by the equipment or appliance manufacturer. An air gap shall be provided between the drain line and the sewer.

Change Section 308.8 to read as follows:

308.8 Masonry Chimneys. The clearance reduction methods specified in Table 308.6 shall not be utilized to reduce the clearances required for masonry chimneys as specified in Chapter 8 and the building code.

Change Section 308.10 to read as follows:

308.10 Masonry fireplaces. The clearance reduction methods specified in Table 308.6 shall not be utilized to reduce the clearances required for masonry fireplaces as specified in Chapter 8 and the building code.

Change Section 310.1 to read as follows:

310.1 Required. Structures occupied for purposes involving explosion hazards shall be provided with explosion venting where required by the fire code. Explosion venting systems shall be designed and installed in accordance with the fire code.

Change Section 311.1 to read as follows:

311.1 Required. Approved smoke and heat vents shall be installed in the roofs of one-story buildings where required by the fire prevention code. Smoke and heat vents shall be designed and installed in accordance with the fire code.

Change Section 312 to read as follows:

SECTION 312
MEDICAL GASES

312.1 Nonflammable medical gases. Nonflammable medical gas systems shall be designed and installed in accordance with Chapter 4 of NFPA 99 listed in Chapter 16.

312.2 Anesthetic systems. Inhalation anesthetic systems shall be designed and installed in accordance with Chapters 3 and 4 of NFPA 99 listed in Chapter 16.

312.3 Oxygen systems. Non-medical oxygen systems shall be designed and installed in accordance with NFPA 50 and NFPA 51 listed in Chapter 16.

Change Section 401.3 to read as follows:

> 401.3 Where required. Ventilation shall be provided during the periods that the room or space is occupied. Spaces containing fuel burning appliances shall be ventilated per Chapter 7.

Change Section 401.4 to read as follows:

> 401.4 Exits. Equipment and ductwork for exit enclosure ventilation shall comply with one of the following items:
>
> > 1. Such equipment and ductwork shall be located exterior to the building and shall be directly connected to the exit enclosure by ductwork enclosed in construction as required by the building code for shafts.
> >
> > 2. Where such equipment and ductwork is located within the exit enclosure, the intake air shall be taken directly from the outdoors and the exhaust air shall be discharged directly to the outdoors, or such air shall be

conveyed through ducts enclosed in construction as required by the building code for shafts.

3. Where located within the building, such equipment and ductwork shall be separated from the remainder of the building, including other mechanical equipment, with construction as required for shafts.

In each case, openings into fire-resistance-rated construction shall be limited to those needed for maintenance and operation and shall be protected by self-closing fire-resistance-rated devices in accordance with the building code for enclosure wall opening protectives.

Exit enclosure ventilation systems shall be independent of other building ventilation systems.

Change Section 401.5 to read as follows:

401.5 Opening location. Outside air exhaust and intake openings shall be located a minimum of 10 feet (3048 mm) from lot lines or buildings on the same lot. In multi-story structures the location of intake and exhaust openings shall be approved by the code official.

Exception: Use Group R-3.

Change Section 401.5.2 to read as follows:

401.5.2 Exhaust openings. Outside exhaust openings shall be located so as to not create a nuisance. Exhaust air shall not be directed onto walkways. Exhaust openings above driveways and alleys shall be located fourteen feet above grade measured to the bottom of the opening or equipment if the exhaust equipment protrudes beyond the wall.

Change Section 401.6 to read as follows:

401.6 Outdoor opening protection: Air exhaust and intake openings that terminate outdoors shall be protected with corrosion resistant screens, louvers or grills. Openings in louvers, grills and screens shall be sized in accordance with Table 401.6, and shall be protected against local weather conditions. Outdoor air exhaust and intake openings located in exterior walls shall meet the provisions for exterior wall opening protectives in accordance with the building code.

Change Section 402.1 to read as follows:

402.1 General. Natural ventilation of an occupied space shall comply with Chapter 12 of the building code.

Change Section 403.3 to read as follows:

403.3 Ventilation rate. Ventilation systems shall be designed to have the capacity to supply the minimum outdoor air flow rate determined in accordance with Table 403.3 based on the occupancy of the space and the occupant load or other parameter as stated therein. The occupant load utilized for design of the ventilation system shall not be less than the number determined from the estimated maximum occupant load indicated in Table 403.3. Ventilation rates for occupancies not represented in Table 403.3 shall be determined by an approved engineering analysis. The ventilation system shall be designed to supply the required rate of ventilation air continuously during the period the building is occupied, except as otherwise stated in other provisions of the code.

Exception: The occupant load shall not be required to be determined by Table 403.3, where alternate occupant load is determined and approved by the Fire Marshal.

Change Section 406.1 to read as follows:

406.1 General. Uninhabited spaces, such as crawl spaces and attics, shall be provided with natural ventilation openings as required by the building code or shall be provided with a mechanical exhaust and supply air system. The mechanical exhaust rate shall not be less than 0.02 cfm

per square foot (0.00001 m^2/s^{2}m^2) of horizontal area and shall be automatically controlled to operate when the relative humidity in the space served exceeds 60 percent.

Add Section 501.2.1. To read as follows:

501.2.1 Energy recovery wheels. Energy recovery wheels, enthalpy wheels or regenerative heat exchangers shall not be installed on any single or combined mechanical exhaust system from bath, toilet, urinal, locker, service sink closet and similar room. Energy recovery wheels, enthalpy wheels or regenerative heat exchangers shall not be installed on any Type I or Type II exhaust system for food-processing operations.

Change Section 502.6.2 to read as follows:

502.6.2 Limited spraying spaces. Positive mechanical ventilation which provides a minimum of six complete air changes per hour shall be installed in limited spraying spaces. Such system shall meet the requirements of the fire code for handling flammable vapors. Explosion venting is not required.

Change Section 502.7.1 to read as follows:

502.7.1 Storage in excess of the maximum allowable quantities. Indoor storage areas and storage buildings for hazardous materials in amounts exceeding the maximum allowable quantity per control area shall be provided with mechanical exhaust ventilation or natural ventilation where natural ventilation can be shown to be acceptable for the materials stored.

Exception: Storage areas for flammable solids complying with the fire code.

Change Section 502.8.5 to read as follows:

502.8.5 Flammable and combustible liquids. Exhaust ventilation systems shall be provided as required by Sections 502.8.5.1 through 502.8.5.5 for the storage, use,

dispensing, mixing and handling of flammable and combustible liquids. Unless otherwise specified, this section shall apply to any quantity of flammable and combustible liquids.

Exception: This section shall not apply to flammable and combustible liquids that are exempt from the fire code.

Change Sections 502.8.5.2 and 502.8.5.3 to read as follows:

502.8.5.2 Storage rooms and warehouses. Liquid storage rooms and liquid storage warehouses for quantities of liquids exceeding those specified in the fire code shall be vented in accordance with Section 502.7.1

502.8.5.3 Cleaning machines. Areas in which machines used for parts cleaning in accordance with the fire code are located shall be adequately ventilated to prevent accumulation of vapors.

Change Sections 502.8.8.2 and 502.8.8.3 to read as follows:

502.8.8.2 Local exhaust for portable tanks. A means of local exhaust shall be provided to capture leakage from indoor and outdoor portable tanks. The local exhaust shall consist of portable ducts or collection systems designed to be applied to the site of a leak in a valve or fitting on the tank. The local exhaust system shall be located in a gas room. Exhaust shall be directed to a treatment system where required by the fire code.

502.8.8.3 Piping and controls - stationary tanks. Filling or dispensing connections on indoor stationary tanks shall be provided with a means of local exhaust. Such exhaust shall be designed to capture fumes and vapors. The exhaust shall be directed to a treatment system where required by the fire code.

Change Sections 502.8.8.5 and 502.8.8.6 to read as follows:

502.8.8.5 Treatment system. The exhaust ventilation from gas cabinets, exhausted enclosures and gas rooms, and local

exhaust systems required by Sections 502.8.8.2 and 802.8.8.3 shall be directed to a treatment system where required by the fire code.

502.8.8.6 Process equipment. Effluent from indoor and outdoor process equipment containing highly toxic or toxic compressed gases which could be discharged to the atmosphere shall be processed through an exhaust scrubber or other processing system. Such systems shall be in accordance with the fire code.

Change Sections 502.9 and 502.9.1 to read as follows:

502.9 Hazardous production materials (HPM). Exhaust ventilation systems and materials for ducts utilized for the exhaust of HPM shall comply with this section, other applicable provisions of this code, the building code and the fire code.

502.9.1 Where required. Exhaust ventilation systems shall be provided in the following locations in accordance with the requirements of this section and the building code:

1. Fabrication areas: Exhaust ventilation for fabrication areas shall comply with the building code. Additional manual control switches shall be provided where required by the code official.

2. Workstations: A ventilation system shall be provided to capture and exhaust fumes and vapors at workstations.

3. Liquid storage rooms: Exhaust ventilation for liquid storage rooms shall comply with Section 502.7.1.1 and the building code.

4. HPM rooms: Exhaust ventilation for HPM rooms shall comply with Section 502.7.1.1 and the building code.

5. Gas Cabinets: Exhaust ventilation for gas cabinets shall comply with Section 502.7.2. The gas cabinet ventilation system is allowed to connect to a workstation ventilation system. Exhaust ventilation for gas cabinets containing highly toxic or toxic gases shall also comply with Sections 502.8.7 and 502.8.8.

6. Exhausted enclosures: Exhaust ventilation for exhausted enclosures shall comply with Section 502.7.2. Exhaust ventilation for enclosures containing highly toxic or toxic gases shall also comply with Sections 502.8.7 and 502.8.8.

7. Gas rooms: Exhaust ventilation for gas rooms shall comply with Section 502.7.2. Exhaust ventilation for gas cabinets containing highly toxic or toxic gases shall also comply with Sections 502.8.7 and 502.8.8.

Change Section 502.9.3 to read as follows:

502.9.3 Treatment systems. Treatment systems for highly toxic and toxic gases shall comply with the fire code.

Change Section 502.15.2 to read as follows:

502.15.2 Operation. The mechanical ventilation system shall operate continuously.

Exceptions:

1. Mechanical ventilation systems that are interlocked with a gas detection system designed in accordance with the fire code.

2. Mechanical ventilation systems in garages that are used

only for the repair of vehicles fueled by liquid fuels or odorized gases, such as CNG, where the ventilation system is electrically interlocked with the lighting circuit.

Change Section 504.2 to read as follows:

504.2 Exhaust penetrations. Ducts that exhaust clothes dryers shall not penetrate or be located within any fireblocking, draft-stopping or any wall, floor/ceiling or other assembly required by the building code to be fire-resistance rated, unless such duct is constructed of galvanized steel or aluminum of the thickness specified in Section 603.3 and the fire-resistance rating is maintained in accordance with the building code.

Change Section 506.1 to read as follows:

506.1 General. Commercial kitchen grease ducts and exhaust equipment shall comply with the requirements of this section. Commercial kitchen grease ducts shall be designed for the type of cooking appliances and hood served. Commercial systems shall comply with Sections 506, 507, 508 and 509 of this code and NFPA 96 listed in Chapter 15.

Change Section 506.3 to read as follows:

506.3 Ducts serving Type I hoods. Commercial kitchen exhaust systems serving Type I hoods shall be liquid-tight, designed, constructed and installed in accordance with Sections 506.3.1 through 506.13.3 and NFPA 96.

Change Section 506.3.4 to read as follows:

506.3.4 Grease duct support. Grease duct bracing and supports shall be of noncombustible material securely attached to the structure and designed to carry gravity and seismic loads within the stress limitations of the building

code. Bolts, screws, rivets and other mechanical fasteners shall not penetrate duct walls.

Change Sections 506.3.11 to read as follows:

506.3.11 Duct enclosure. A grease duct serving a Type I hood that penetrates a ceiling, wall or floor shall be enclosed from the point of penetration to the outlet terminal. A duct shall only penetrate exterior walls at locations where unprotected openings are permitted by the building code. Ducts shall be enclosed in accordance with the building code requirements for shaft construction. The duct enclosure shall be sealed around the duct at the point of penetration and vented to the outside of the building through the use of weather-protected openings. The enclosure shall be separated from the duct by a minimum of 6 inches (152 mm) and a maximum of 12 inches (305 mm) and shall serve a single grease exhaust system.

Exceptions:

1. The shaft enclosure provisions of this section shall not be required where a duct penetration is protected with a through-penetration firestop system classified in accordance with ASTM E 814 and having an "F" or "T" rating equal to the fire-resistance rating of the assembly being penetrated and where the surface of the duct is continuously covered on all sides from the point at which the duct penetrates a ceiling, wall or floor to the outlet terminal with a classified and labeled material, system, method of construction or product specifically evaluated for such purpose, in accordance with a nationally recognized

standard for such enclosure materials.

2. A duct enclosure shall not be required for a grease duct that penetrates only a non-fire-resistance-rated roof/ceiling assembly.

Change Section 506.3.13.2 to read as follows:

506.3.13.2 Termination through an exterior wall. Exhaust outlets shall be permitted to terminate through exterior walls where the smoke, grease, gases, vapors, and odors in the discharge from such terminations do not create a public nuisance or a fire hazard. Such terminations shall not be located where protected openings are required by the building code. Other exterior openings shall not be located within 3 feet (914 mm) of such terminations.

Change Section 506.4.1to read as follows:

506.4.1 Type II exhaust hoods. Exhaust outlets for ducts serving Type II hoods shall comply with Sections 401.5 and 401.5.2. Such outlets shall be protected against local weather conditions and shall meet the provisions for exterior wall opening projectiles in accordance with the building code.

Add Sections 506.5 and 506.6 to read as follows:

506.5 Cleaning Schedule. A cleaning schedule shall be maintained by the owner or occupant for every commercial kitchen exhaust system. The schedule shall indicate the methods of cleaning and the time interval between cleanings.

506.6. Existing Equipment. Existing commercial kitchen exhaust equipment shall be made of copper, steel or stainless steel, shall be of liquid tight construction throughout the head and associated exhaust duct(s) shall

incorporate an approved fire suppression system and shall successfully pass a capture test.

Change Section 507.2 to read as follows:

507.2 Where required. A Type I or Type II hood shall be installed at or above all commercial food heat-producing appliances. A Type II hood shall be installed above commercial dishwashing machines and pizza ovens.

Exceptions:

1. Food heat-processing appliances installed within a dwelling unit.

2. cooking appliances. Any portable cooking appliance which the

3. manufacturer recommends venting must be vented according to Sections 506 and 507.

Add Section 507.9.1 to read as follows:

507.9.1 Flashing. Hoods located less than 12 inches (305 mm) from a ceiling or wall shall be flashed solidly with materials specified in section 507.4 or noncombustible materials having a minimum 1-hour fire-resistance rating.

Add Sections 507.15.1 and 507.15.2 to read as follows:

507.15.1 Pizza oven. The exhaust air requirements for a chamber type oven shall be 10 cfm/lineal foot of door opening or 500 cfm, whichever is more. For conveyor type ovens the exhaust air shall be 50 cfm times the total area of the end openings or 500 cfm whichever is more. The hood shall effectively capture the vapors from the air.

507.15.2 Dishwashing equipment hoods. The total quantity of air (Q) to be exhausted from dishwashing equipment hoods shall be determined by the following formula:

Pantleg Hoods: Q = 150 cfm/square foot of door area each end.

Exhausted Vestibules: Q = 15 cfm/square foot of entrance and exit area. When duct takeoffs are an integral part of the unit, follow manufacturer's recommendations for exhaust rate.

Change Section 508.1 to read as follows:

508.1 Makeup air. Makeup air shall be supplied during the operation of the commercial kitchen exhaust system that is provided for commercial food heat-processing appliances whenever the volume of air exceeds 1500 cfm. Makeup air must be all outside air equal in volume to the amount exhausted with a minimum of eighty percent supplied to the kitchen proper. The makeup air shall not reduce the effectiveness of the exhaust system. Makeup air shall be provided by gravity or mechanical means or both. For mechanical makeup air systems, the exhaust and makeup air systems shall be electrically interlocked to insure that makeup air is provided whenever the exhaust system is in operation.

Exception: This section shall not apply to dwelling units.

Change Section 509.1 to read as follows:

509.1 Where required. Commercial food heat-processing appliances required by Section 507.2.1 to have a Type I hood shall be provided with an approved automatic fire suppression system complying with the building code and the fire code.

Add Sections 509.2 thru 509.2.6.5 to read as follows:

509.2 Commercial cooking systems. The automatic fire-extinguishing system for commercial cooking systems shall be of a type recognized for protection of commercial cooking equipment and exhaust systems of the type and arrangement protected. Preengineered automatic dry- and

wet-chemical extinguishing systems shall be tested in accordance with UL 300 and listed and labeled for the intended application. Other types of automatic fire-extinguishing systems shall be listed and labeled for specific use as protection for commercial cooking operations. The system shall be installed in accordance with this code, its listing and the manufacturer's installation instructions. Automatic fire-extinguishing systems of the following types shall be installed in accordance with NFPA 96 and the referenced standard indicated, as follows:

1. Carbon dioxide extinguishing systems, NFPA 12.

2. Automatic sprinkler system, NFPA 13.

3. Foam-water sprinkler system or foam-water spray systems, NFPA 16.

4. Dry-chemical extinguishing systems, NFPA 17.

5. Wet-chemical extinguishing systems, NFPA 17A.

509.2.1 Manual system operation. A manual actuation device shall be located at or near a means of egress from the cooking area, a minimum of 10 feet (3048 mm) and a maximum of 20 feet (6096 mm) from the kitchen exhaust system. The manual actuation device shall be located a minimum of 4.5 feet (1372 mm) and a maximum of 5 feet (1524 mm) above the floor. The manual actuation shall require a maximum force of 40 pounds (178 N) and a maximum movement of 14 inches (356 mm) to actuate the fire suppression system.

Exception: Automatic sprinkler systems shall not be required to be equipped with manual actuation means.

509.2.2 System interconnection. The actuation of the fire suppression system shall automatically shut down the fuel

or electrical power supply to the cooking equipment. The fuel and electrical supply reset shall be manual.

509.2.3 Carbon dioxide systems. When carbon dioxide systems are used, there shall be a nozzle at the top of the ventilating duct. Additional nozzles that are symmetrically arranged to give uniform distribution shall be installed within vertical ducts exceeding 20 feet (6096 mm) and horizontal ducts exceeding 50 feet (15,240 mm). Dampers shall be installed at either the top or the bottom of the duct and shall be arranged to operate automatically upon activation of the fire-extinguishing system. When the damper is installed at the top of the duct, the top nozzle shall be immediately below the damper. Automatic carbon dioxide fire-extinguishing systems shall be sufficiently sized to protect all hazards venting through a common duct simultaneously.

509.2.3.1 Ventilation system. Commercial-type cooking equipment protected by an automatic carbon dioxide extinguishing system shall be arranged to shut off the ventilation system upon activation.

509.2.4 Special provisions for automatic sprinkler systems. Automatic sprinkler systems protecting commercial-type cooking equipment shall be supplied from a separate, readily accessible, indicating-type control valve that is identified.

509.2.4.1 Listed sprinklers. Sprinklers used for the protection of fryers shall be listed for that application installed in accordance with their listing.

509.2.5 Commercial cooking equipment. Portable fire extinguishers shall be provided within a 30-foot (9144 mm) travel distance of commercial-type cooking equipment. Cooking equipment involving vegetable or animal oils and fats shall be protected by a Class K rated portable extinguisher.

509.2.6 Operations and maintenance. Commercial cooking systems shall be operated and maintained in accordance with this section.

509.2.6.1 Ventilation system. The ventilation system in connection with hoods shall be operated at the required rate of air movement, and classified grease filters shall be in place when equipment under a kitchen grease hood is used.

509.2.6.2 Grease extractors. When grease extractors are installed, they shall be operated when the commercial-type cooking equipment is used.

509.2.6.3 Cleaning. Hoods, grease-removal devices, fans, ducts and other appurtenances shall be cleaned at intervals necessary to prevent the accumulation of grease. Cleanings shall be recorded, and records shall state the extent, time and date of cleaning. Such records shall be maintained on the premises.

509.2.6.4 Extinguishing system service. Automatic fire-extinguishing systems shall be serviced at least every 6 months and after activation of the system. Inspection shall be by qualified individuals, and a certificate of inspection shall be forwarded to the code official upon completion.

509.2.6.5 Fusible link and sprinkler head replacement. Fusible links and automatic sprinkler heads shall be replaced at least annually, and other protection devices shall be serviced or replaced in accordance with the manufacturer's instructions.

Exception: Frangible bulbs are not required to be replaced annually.

Change Sections 510.2.1 and 510.2.2 to read as follows:

510.2.1 Lumber yards and woodworking facilities. Equipment or machinery located inside buildings at lumber yards and woodworking facilities which generates or emits combustible dust shall be provided with an approved dust-collection and exhaust system installed in conformance

with this section and the fire code. Equipment and systems that are used to collect, process or convey combustible dusts shall be provided with an approved explosion-control system.

510.2.2 Combustible fibers. Equipment or machinery within a building which generates or emits combustible fibers shall be provided with an approved dust-collecting and exhaust system. Such systems shall comply with this code and the fire code.

Change Section 510.4 to read as follows:

510.4 Independent system. Hazardous exhaust systems shall be independent of other types of exhaust systems. Incompatible materials, as defined in the fire code, shall not be exhausted through the same hazardous exhaust system. Hazardous exhaust systems shall not share common shafts with other duct systems, except where such systems are hazardous exhaust systems originating in the same fire area.

Contaminated air shall not be recirculated to occupied areas unless the contaminants have been removed. Air contaminated with explosive or flammable vapors, fumes or dusts; flammable or toxic gases; or radioactive material shall not be recirculated.

Change Sections 510.6 and 510.7 to read as follows:

510.6 Penetrations. Penetrations of structural elements by a hazardous exhaust system shall conform to the building code.

510.7 Suppression required. Duct shall be protected with an approved automatic fire suppression system installed in accordance with the building code.

Exception: An approved automatic fire suppression system shall not be required in ducts conveying materials, fumes, mists and vapors that are nonflammable and noncombustible.

Change Section 511.1.5 to read as follows:

> 511.1.5 Explosion relief vents. A safety or explosion relief vent shall be provided on all systems that convey combustible refuse or stock of an explosive nature, in accordance with the requirements of the building code.

Add Section 511.3 to read as follows:

> 511.3 Equipment in airstream. Fans and mechanical equipment shall not be located within the airstream unless specifically approved for such installation.

Change Section 512.2 to read as follows:

> 512.2 Materials. Subslab soil exhaust system duct material shall be air duct material listed and labeled to the requirements of UL 181 for Class O air ducts, or any of the following piping materials that comply with the plumbing code as building sanitary drainage and vent pipe: cast iron; galvanized steel; brass or copper pipe; copper tube of a weight not less than that of copper drainage tube, Type DWV; and plastic piping.

Change Section 513.1 to read as follows:

> 513.1 Scope and purpose. This section applies to mechanical and passive smoke control systems that are required by the building code. The purpose of this section is to establish minimum requirements for the design, installation, and acceptance testing of smoke control systems that are intended to provide a tenable environment for the evacuation or relocation of occupants. These provisions are not intended for the preservation of contents, the timely restoration of operations, or for assistance in fire suppression or overhaul activities. Smoke control systems regulated by this section serve a different purpose that the smoke- and heat- venting provisions found in Section 923 of the building code.

Change Section 513.2 to read as follows:

513.2 General design requirements. Buildings, structures, or parts thereof required by this code to have a smoke control system or systems shall have such systems designed in accordance with the applicable requirements of Section 922 of the building code and the generally accepted and well-established principles of engineering relevant to the design. The construction documents shall include sufficient information and detail to describe adequately the elements of the design necessary for the proper implementation of the smoke control systems. These documents shall be accompanied with sufficient information and analysis to demonstrate compliance with these provisions.

Change Section 513.3 to read as follows:

513.3 Special inspection and test requirements. In addition to the ordinary inspection and test requirements which buildings, structures and parts thereof are required to undergo, smoke control systems subject to the provisions of Section 922 of the building code shall undergo special inspections and tests sufficient to verify the proper commissioning of the smoke control design in its final installed condition. The design submission accompanying the construction documents shall clearly detail procedures and methods to be used and the items subject to such inspections and tests. Such commissioning shall be in accordance with generally accepted engineering practice and, where possible, based on published standards for the particular testing involved. The special inspections and tests required by this section shall be conducted under the same terms as found in Section 1707 of the building code.

Change Section 513.4.3 to read as follows:

513.4.3 Wind effect. The design shall consider the adverse effects of wind. Such consideration shall be consistent with the wind-loading provisions of the building code.

Change Section 513.5 to read as follows:

513.5 Smoke barrier construction. Smoke barriers shall comply with the building code. Smoke barriers shall be

constructed and sealed to limit leakage areas exclusive of protected openings. The maximum allowable leakage area shall be the aggregate area calculated using the following leakage area ratios:

1. Walls: $A / A_W = 0.00100$

2. Exit enclosures: $A / A_W = 0.00035$

3. All other shafts: $A / A_W = 0.00150$

4. Floors and roofs: $A / A_F = 0.00050$

where:

A = Total leakage area, square feet (m^2).

A_F = Unit floor or roof area of barrier, square feet (m^2).

A_W = Unit wall area of barrier, square feet (m^2).

Change Section 513.5.2 to read as follows:

513.5.2 Opening protection. Openings in smoke barriers shall be protected by automatic- closing devices actuated by the required controls for the mechanical smoke control system. Door openings shall be protected by door assemblies complying with the requirements of the building code for doors in smoke barriers.

Exceptions:

1. Passive smoke control systems with automatic-closing devices actuated by spot-type smoke detectors listed for releasing service installed in accordance with the building code.

2. Fixed openings between smoke zones which are protected utilizing the airflow method.

3. In Group I-2 where such doors are installed across corridors, a pair of opposite-swinging doors without a center mullion shall be installed having vision panels with approved fire-rated glazing materials in approved fire-rated frames, the area of which shall not exceed that tested. The doors shall be close fitting within operational tolerances, and shall not have undercuts, louvers or grilles. The doors shall have head and jamb stops, astragals or rabbets at meeting edges and automatic-closing devices. Positive latching devices are not required.

4. Group I-3.

5. Openings between smoke zones with clear ceiling heights of 14 feet (4267 mm) or greater and bank down capacity of greater than 20 minutes as determined by the design fire size.

Change Section 513.5.2.1 to read as follows:

513.5.2.1 Ducts and air transfer openings. Ducts and air transfer openings are required to be protected with a minimum Class II 250^{o}F (121^{o}C) smoke damper complying with the building code.

Change Section 513.6.2 to read as follows:

513.6.2 Maximum pressure difference. The maximum air pressure difference across a smoke barrier shall be determined by required door-opening or closing forces. The actual force required to open exit doors when the system is in the smoke control mode shall be in accordance with the building code. Opening and closing forces for other doors shall be determined by standard engineering methods for the resolution of forces and reactions. The calculated force to set a side-hinged, swinging door in motion shall be determined by :

$F = F_{dc} + K (W A ? P) / (W - d)$ (Equation 5-2)

where:

A = Door area, square feet (m^2)

d = Distance from door handle to latch edge of door, feet (m).

F = Total door opening force, pounds (N).

F_{dc} = Force required to overcome closing device, pounds (N).

K = Coefficient 5.2 (1.0).

W = Door width, feet (m).

?P = Design pressure difference, inches (Pa) water gage.

Change Section 513.10.5 to read as follows:

513.10.5 Fans. In addition to other requirements, belt-driven fans shall have 1.5 times the number of belts required for the design duty with the minimum number of belts being two. Fans shall be selected for stable performance based on normal temperature and, where applicable, elevated temperature. Calculations and manufacturer’s fan curves shall be part of the

documentation procedures. Fans shall be supported and restrained by noncombustible devices in accordance with the structural design requirements of the building code. Motors driving fans shall not be operating beyond their nameplate horsepower (kilowatts) as determined from measurement of actual current draw. Motors driving fans shall have a minimum service factor of 1.15.

Change Section 513.11 to read as follows:

513.11 Power systems. The smoke control system shall be supplied with two sources of power. Primary power shall be the normal building power system. Secondary power shall be from an approved standby source complying with the electrical code. The standby power source and its transfer switches shall be in a separate room from the normal power transformers and switch gear and shall be enclosed in a room of not less than 1-hour fire-resistance-rated construction, ventilated directly to and from the exterior. Power distribution from the two sources shall be by independent routes. Transfer to full standby power shall be automatic and within 60 seconds of failure of the primary power. The systems shall comply with the electrical code.

Change Sections 513.12 thru 513.12.2 to read as follows:

513.12 Detection and control systems. Fire detection systems providing control input or output signals to mechanical smoke control systems or elements thereof shall comply with the requirements of Chapter 9 of the building code and NFPA 72. Such systems shall be equipped with a control unit complying with UL 864 and listed as smoke control equipment.

Control systems for mechanical smoke control systems shall include provisions for verification. Verification shall include positive confirmation of actuation, testing, manual override, the presence of power downstream of all disconnects and, through a preprogrammed weekly test sequence report, abnormal conditions audibly, visually and by printed report.

513.12.1 Wiring. In addition to meeting the requirements of the electrical code, all wiring, regardless of voltage, shall be fully enclosed within continuous raceways.

513.12.2 Activation: The smoke control system shall be activated by actuation of the following

1. Automatic sprinkler system.

2. Smoke detectors required by this section that comply with NFPA 72 listed in Chapter 15.

3. Manual controls provided for fire department use.

The system shall not be activated by a manual fire alarm system.

Add Sections 513.12.2.1 and 513.12.2.2 to read as follows:

513.12.2.1 Manual control: Manual controls shall be provided at a location approved by the fire department.

513.12.2.2 Smoke detector activation: Where the height of the ceiling of the space required to be provided with smoke control exceeds 30 feet (9144 mm) above the floor of the space, approved smoke detectors shall be provided to detect smoke above the highest floor open to an atrium or at the highest point of another space required to be provided with smoke control. The installation of smoke detectors shall comply with Section 919.0 of the building code.

Change Section 513.15 and 513.16 to read as follows:

513.15 Control diagrams. Identical control diagrams showing all devices in the system and identifying their location and function shall be maintained current and kept on file with the code official, the fire department and in the fire command center in format and manner approved by the fire chief.

513.16 Fire-fighter's smoke control panel. A fire-fighter's smoke control panel for fire department emergency response purposes only shall be provided and shall include manual control or override of automatic control for mechanical smoke control systems. The panel shall be located in a fire command center complying with Sections 513.16.1 through 513.16.4.

Add Section 513.16.1 through 513.16.4 as follows:

513.16.1 Fire command center. The fire command center should be located at or near an entrance to the building. The location and accessibility of the fire command center shall be approved by the fire department. The fire command center shall be separated from the remainder of the building by not less than a 1-hour fire-resistance-rated fire barrier. The room shall be a minimum of 96 square feet (9 m 2) with a minimum dimension of 8 feet (2438 mm). A layout of the fire command center and all features required by this section to be contained therein shall be submitted for approval prior to installation. The fire command center shall comply with NFPA 72 and shall contain the following features when required by this code, the building code, or the fire code:

1. The emergency voice/alarm communication system unit.

2. The fire department communications system.

3. Fire-detection and alarm system annunciator system.

4. Annunciator visually indicating the location of the elevators and whether they are operational.

5. Status indicators and controls for air-handling systems.

6. The fire-fighter’s control panel required by Section 909.16 for smoke control systems installed in the building.

7. Controls for unlocking stairway doors simultaneously.

8. Sprinkler valve and water-flow detector display panels.

9. Emergency and standby power status indicators.

10. A telephone for fire department use with controlled access to the public telephone system.

11. Fire pump status indicators.

12. Schematic building plans indicating the typical floor plan and detailing the building core, means of egress, fire protection systems, fire-fighting equipment and fire department access.

13. Work table.

14. Generator supervision devices, manual star and transfer features.

15. Public address system, where specifically required by other sections of this code.

513.16.2 Smoke control systems. Fans within the building shall be shown on the fire-fighter’s control panel. A clear indication of the direction of airflow and the relationship of components shall be displayed. Status indicators shall be provided for all smoke control equipment, annunciated by fan and zone and by pilot-lamp-type indicators as follows:

1. Fans, dampers and other operating equipment in their normal status - WHITE.

2. Fans, dampers and other operating equipment in their off or closed status - RED.

3. Fans, dampers and other operating equipment in their on or open status - GREEN.

4. Fans, dampers and other operating equipment in a fault status - YELLOW/AMBER.

513.16.3 Smoke control panel. The fire-fighter's control panel shall provide control capability over the complete smoke-control system equipment within the building as follows:

1. ON - AUTO - OFF control over each individual piece of operating smoke control equipment that can also be controlled from other sources within the building. This includes stairway pressurization fans; smoke exhaust fans; supply, return and exhaust fans; elevator shaft fans; and other operating equipment used or intended for smoke control purposes.

2. OPEN - AUTO - CLOSE control over individual dampers relating to smoke control and that are also controlled from other sources within the building.

3. ON - OFF or OPEN - CLOSE control over smoke control and other critical equipment associated with a fire or smoke emergency and that can only be controlled from the fire-fighter's control panel.

Exceptions:

1. Complex systems, where approved, where

the controls and indicators are combined to control and indicate all elements of a single smoke zone as a unit.

2. Complex systems, where approved, where the control is accomplished by computer interface using approved, plain English commands.

513.16.4 Control action and priorities. The fire-fighter's control panel actions shall be as follows:

1. ON - OFF, OPEN - CLOSE control actions shall have the highest priority of any control point within the building. Once issued from the fire-fighter's control panel, no automatic or manual control from any other control point within the building shall contradict the control action. Where automatic means are provided to interrupt normal, non-emergency equipment operation or produce a specific result to safeguard the building or equipment (i.e., duct freezestats, duct smoke detectors, high-temperature cutouts, temperature-actuated linkage and similar devices), such means shall be capable of being overridden by the fire-fighter's control panel. The last control action as indicated by each fire-fighter's control panel switch position shall prevail. In no case shall control actions require the smoke control system to assume more than one configuration at any one time.

Exception: Power disconnects required by the electrical code.

2. Only the AUTO position of each three-position fire-fighter's control panel switch shall allow automatic or manual control action from other control points within the building. The AUTO position shall be the NORMAL, non-emergency, building control position. Where a fire-fighter's control panel is in the AUTO position, the actual status of the device (on, off, open, closed) shall continue to be indicated by the status indicator described above. When directed by an automatic signal to assume an emergency condition, the NORMAL position shall become the emergency condition for that device or group of devices within the zone. In no case shall control actions require the smoke control system to assume more than one configuration at any one time.

Change Section 513.17 and 513.18 to read as follows:

513.17 System response time. Smoke-control system activation shall be initiated immediately after receipt of an appropriate automatic or manual activation command. Smoke control systems shall activate individual components (such as dampers and fans) in the sequence necessary to prevent physical damage to the fans, dampers, ducts and other equipment. For purposes of smoke control, the fire-fighter's control panel response time shall be the same for automatic or manual smoke control action initiated from any other building control point. The total response time, including that necessary for detection, shut down or operating equipment and smoke control system startup, shall allow for full operation mode to be achieved before the conditions in the space exceed the design smoke condition. In all cases this shall be two minutes or less. The system response time for each component and their sequential relationships shall be detailed in the required

rational analysis and verification of their installed condition reported in the required final report.

.513.18 Acceptance testing. Devices, equipment, components and sequences shall be individually tested. These tests, in addition to those required by other provisions of this code, shall consist of determination of function, sequence and, where applicable, capacity of their installed condition.

Add Section 513.18.1 through 513.18.10 as follows:

513.18.1 System operation report. Prior to acceptance testing, a report of the required system operation shall be provided to and approved by the code official. The following items shall be included in the report if part of the required system:

1. Identify type(s) of smoke control activation signal(s) such as sprinkler waterflow, smoke detection, manual, etc., and associated smoke control system operation(s) that are activated by the signals.

2. Identify building area(s) where maximum mechanical exhaust to the outside is implemented and supply air is not provided.

3. Identify building area(s) where maximum air supply is implemented and exhaust to the outside is not provided.

4. Identify fan(s) which shall be "On" as required to implement the smoke control system. If multiple-speed fans are used, the capacity at which the fans shall operate in the smoke control mode shall be identified.

5. Identify fan(s) which shall be "Off" as required to implement the smoke control system.

6. Identify damper(s) which shall be "Open" to implement the smoke control system.

7. Identify damper(s) which shall be "Closed" to implement the smoke control system.

8. Identify other functions are required to implement the smoke control system.

9. Identify building areas with smoke and heat vents and method of operation of vents.

10. If required, identify the type(s) of standby power and the equipment that is served.

513.18.2 Detection devices. Smoke or fire detectors that are a part of a smoke control system shall be tested in accordance with Chapter 9 of the fire code in their installed condition. When applicable, this testing shall include verification of airflow in both minimum and maximum conditions.

513.18.3 Ducts. Ducts that are part of a smoke control system shall be traversed using generally accepted practices to determine actual air quantities.

513.18.4 Dampers. Dampers shall be tested for function in their installed condition.

513.18.5 Inlets and outlets. Inlets and outlets shall be read using generally accepted practices to determine air quantities.

513.18.6 Fans. Fan shall be examined for correct rotation. Measurements of voltage, amperage, revolutions per minute and belt tension shall be made.

513.18.7 Smoke barriers. Measurements using inclined manometers or other approved calibrated measuring devices shall be made of the pressure differences across smoke barriers. Such measurements shall be conducted for each possible smoke control condition.

513.18.8 Controls. Each smoke zone, equipped with an automatic-initiation device, shall be put into operation by the actuation of one such device. Each additional device within the zone shall be verified to cause the same sequence without requiring the operation of fan motors in order to prevent damage. Control sequences shall be verified throughout the system, including verification of override from the fire-fighter's control panel and simulation of standby power conditions.

513.18.9 Special inspections for smoke control. Smoke control systems shall be tested by a special inspector.

513.18.9.1 Scope of testing. Special inspections shall be conducted in accordance with the following:

1. During erection of ductwork and prior to concealment for the purposes of leakage testing and recording of device location.

2. Prior to occupancy and after sufficient completion for the purposes of pressure-difference testing, flow measurements, and detection and control verification.

513.18.9.2 Qualifications. Special inspection agencies for smoke control shall have expertise in fire protection engineering, mechanical engineering and certification as air balancers.

513.18.9.3 Reports. A complete report of testing shall be prepared by the special inspector or special inspection agency. The report shall include identification of all devices by manufacturer nameplate data, design values, measured values and identification tag or mark. The report shall be reviewed by the responsible registered design professional and, when satisfied that the design intent has been achieved, the responsible registered design professional shall seal, sign and date the report.

513.18.9.3.1 Report filing. A copy of the final report shall be filed with the code official and an identical copy shall be maintained in an approved location at the building.

513.18.10 Identification and documentation. Charts, drawings and other documents identifying and locating each component of the smoke control system, and describing their proper function and maintenance requirements shall be maintained on file at the building as an attachment to the report required by Section 909.18.9.3. Devices shall have an approved identifying tag or mark on them consistent with the other required documentation and shall be dated indicating the last time they were successfully tested and by whom.

Change Sections 513.19 and 513.20 to read as follows:

513.19 System acceptance. Buildings, or portions thereof, required by this code to comply with this section shall not be issued a certificate of occupancy until such time that the code official determines that the provisions of this section have been fully complied with, and that the fire department has received satisfactory instruction on the operation, both automatic and manual, of the system.

Exception: In buildings of phased construction, a temporary certificate of occupancy, as approved by the code official, shall be permitted provided that those portions of the building to be occupied meet the requirements of this section and that the remainder does not pose a significant hazard to the safety of the proposed occupants or adjacent buildings.

513.20 Underground building smoke exhaust system. Where required by the building code for underground buildings, a smoke exhaust system shall be provided in accordance with this section.

Change Sections 513.20.2 and 513.20.3 to read as follows:

513.20.2 Operation. The smoke exhaust system shall be operated in the compartment of origin by the following, independently of each other:

1. Two cross-zoned smoke detectors within a single protected area or a single smoke detector monitored by an alarm verification zone or an approved equivalent method.

2. The automatic sprinkler system.

3. Manual controls that are readily accessible to the fire department.

513.20.3 Alarm required. Activation of the smoke exhaust system shall activate an audible alarm at a constantly attended location in accordance with the fire code.

Change Section 601.2 to read as follows:

601.2 Air movement in egress elements. Exits and exit access corridors shall not serve as supply, return, exhaust, relief or ventilation air ducts or plenums except as permitted by the building code.

Change Section 602.2.1 thru 602.2.1.1 to read as follows:

602.2.1 Materials exposed within plenums. Except as required by Sections 602.2.1.1 through 602.2.1.5, materials exposed within plenums shall be noncombustible or shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84.

Exceptions:

1. Rigid and flexible ducts and connectors shall conform to Section 603.

2. Duct coverings, linings, tape and connectors shall conform to Sections 603 and 604.

3. This section shall not apply to materials exposed within plenums in one- and two-family dwellings.

4. This section shall not apply to smoke detectors.

602.2.1.1 Wiring. Combustible electrical or electronic wiring methods and materials, optical fiber cable, and optical fiber raceway exposed within a plenum shall have a peak optical density not greater than 0.50, an average optical density not greater than 0.15, and a flame spread not greater than 5 feet (1524 mm) when tested in accordance with UL 910. Only type OFNP (plenum-rated non-conductive optical fiber cable) shall be installed in plenum-rated optical fiber raceways. Wiring, cable, and raceways addressed in this section shall be listed and labeled as plenum-rated and shall be installed in accordance with the electrical code.

Change Section 602.2.1.5 to read as follows:

602.2.1.5 Pipe. Pipe shall be noncombustible or insulated if combustible. All insulation shall have a flame spread of 25 or less and a smoke-developed rating of 50 or less when tested in accordance with ASTM E 84 listed in Chapter 15. Piping and insulation shall bear the label of an approved agency.

Change Section 602.3 to read as follows:

602.3 Stud cavity and joist space plenums. Stud wall cavities and the spaces between solid wall floor joists to be utilized as air plenums shall comply with the following conditions:

1. Such cavities shall not be utilized as a plenum for supply air.

2. Such cavities or spaces shall not be part of a required fire-resistance-rated assembly.

3. Stud wall cavities shall not convey air from more than one floor level.

4. Stud wall cavities and joist space plenums shall comply with the floor penetration requirements of the building code.

5. Stud wall cavities and joist space plenums shall be isolated from adjacent concealed spaces by approved fire-blocking as required in the building code.

6. Panning of the joist space for return air is permitted in one and two-family dwellings only.

Change Section 603.1 to read as follows:

603.1 General. An air distribution system shall be designed and installed to supply the required distribution of air. The installation of an air distribution system shall not affect the fire protection requirements specified in the building code. Ducts shall be constructed, braced, reinforced and installed to provide structural strength and durability.

Change Sections 603.8 and 603.9 to read as follows:

603.8 Joints, seams and connections. All joints, longitudinal and transverse seams and connections shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus-embedded-fabric systems or tapes. Tapes and mastics used with rigid fibrous glass ducts shall be listed and labeled in accordance with UL 181A. Tapes and mastics used with flexible air ducts and air connectors shall be listed and labeled in accordance with UL 181B. Duct connections to sheet metal fittings or flanges of air distribution system equipment and appliances shall be mechanically fastened.

603.9 Supports. Ducts shall be supported with approved hangers at intervals not exceeding 10 feet (3048 mm) or by other approved duct support systems designed in

accordance with the building code. Flexible and other factory-made ducts shall be supported in accordance with the manufacturer's installation instructions.

Add Section 603.16 as follows:

603.16 Visual duct openings. Duct openings in bathrooms, toilet rooms and changing rooms shall prevent visual observation from adjoining rooms.

Change Section 604.4 to read as follows:

604.4 Foam plastic insulation. Foam plastic shall conform to the requirements of Section 604 of this code and Section 723.0 of the building code.

Change Section 606.2.1 to read as follows:

606.2.1 Return air systems. Smoke detectors shall be installed in return air systems with a design capacity greater than 2,000 cfm ($0.9m^3$ / s), in the return air duct or plenum upstream of any filters, exhaust air connections, outdoor air connections, or decontamination equipment and appliances.

Exception: Smoke detectors are not required in the return air systems where the space served by the air distribution system is protected by a system of area smoke detectors in accordance with the building code. The area smoke detector system shall comply with section 606.4.

Change Sections 607.5.1 thru 607.5.4.1 to read as follows:

607.5.1 Fire walls. Ducts and transfer openings shall not penetrate fire walls.

Exception: Penetrations of fire walls by ducts and air transfer openings shall not be prohibited provided that the fire walls are not on a lot line and such penetrations comply with Sections 711 and 715 of the building code. The duct penetrations and air transfer openings shall be protected by approved fire dampers installed in accordance with this section and their listing.

607.5.2 Fire barriers. Duct penetrations and air transfer openings in the fire barriers shall be protected with approved fire dampers installed in accordance with their listing.

Exceptions: Fire dampers are not required at penetrations of fire barriers where:

1. Steel exhaust air subducts extend not less than 22 inches (559 mm) vertically in an exhaust shaft providing there is a continuous airflow upward to the outdoors.

2. Penetrations are tested in accordance with ASTM E119 as part of the rated assembly.

3. Ducts are used as part of an approved smoke control system in accordance with Section 513.

4. Such walls are penetrated by ducted HVAC systems, have a required fire-resistance rating of 1 hour or less, are in areas of other than Group H and are in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 of the building code.

5. The penetrations are in parking garage exhaust or supply shafts that are separated from all other building shafts by not less than a 2-hour fire-resistance-rated construction.

607.5.3 Fire Partitions. Duct penetrations in fire partitions shall be protected with approved fire dampers installed in accordance with their listing.

Exceptions: In occupancies other than Group H, fire dampers are not required where:

1. The partitions are tenant separation and corridor walls in buildings equipped

throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 of the building code.

2. The duct system is constructed of approved materials in accordance with this code and the duct penetrating the wall meets all of the following minimum requirements:

2.1. The duct shall not exceed 100 square inches (0.06 m^2).

2.2. The duct shall be constructed of steel a minimum of 0.0217 inch (0.55 mm).

2.3. The duct shall not have openings that communicate the corridor with adjacent spaces or rooms.

2.4. The duct shall be installed above a ceiling.

2.5. The duct shall not terminate at a wall register in the fire-resistance-rated wall.

607.5.4 Smoke barriers. A listed smoke damper designed to resist the passage of smoke shall be provided at each point a duct or air transfer opening penetrates a smoke barrier wall or a corridor wall required to have smoke and draft control doors in accordance with the building code.

Exceptions:

1. Smoke dampers are not required where the building is equipped throughout with an approved smoke control system in accordance with Section 513 and smoke dampers are not necessary for the operation and control of the system.

2. Smoke dampers are not required where the openings in ducts are limited to a single smoke compartment and the ducts are constructed of steel.

3. Smoke dampers are not required in corridor penetrations where the duct is constructed of steel not less than 0.019 inch (0.48 mm) in thickness and there are no openings serving the corridor.

607.5.4.1 Smoke damper. The smoke damper shall close upon actuation of a listed smoke detector or detectors installed in accordance with the building code and one of the following methods, as applicable:

1. Where a damper is installed within a duct, a smoke detector shall be installed in the duct within 5 feet (1524 mm) of the damper with no air outlets or inlets between the detector and the damper. The detector shall be listed for the air velocity, temperature and humidity anticipated at the point where it is installed.

2. Where a damper is installed above smoke barrier doors in a smoke barrier, a spot-type detector listed for releasing service shall be installed on either side of the smoke barrier door opening.

3. Where a damper is installed within an unducted opening in a wall, a spot-type detector listed

for releasing service shall be installed within 5 feet (1524 mm) horizontally of the damper.

4. Where a damper is installed in a corridor wall, the damper shall be permitted to be controlled by a smoke detection system installed in the corridor.

5. Where a total-coverage smoke detector system is provided within all areas served by an HVAC system, dampers shall be permitted to be controlled by the smoke detection system.

Change Section 607.6 to read as follows:

607.6 Horizontal assemblies. Penetrations by air ducts of a floor, floor/ceiling assembly or the ceiling membrane of a roof/ceiling assembly shall be protected by a shaft enclosure that complies with the building code or shall comply with this section.

Add Section 630.1 to read as follows:

630.1 Standards. Boilers shall be listed in accordance with the requirements of ANSI Z21.13 or UL 795. The boiler shall be designed and constructed in accordance with the requirements of ASME CSD-1 and, as applicable, the ASME Boiler and Pressure Vessel Code, sections I, II, IV and IX, NFPA 8501, NFPA 8502 and NFPA 8504.

Change Sections 701.4.1and 701.4.2 to read as follows:

701.4.1 Crawl space. Where lower-combustion air openings connect with crawl spaces, such spaces shall have unobstructed openings to the outdoors at least twice that required for the combustion air openings. The height of the crawl space shall comply with the requirements of the

building code and shall be without obstruction to the free flow of air.

701.4.2 Attic space. Where combustion air is obtained from an attic area, the attic ventilating openings shall not be subject to ice or snow blockage, and the attic shall have not less than 30 inches (762 mm) vertical clear height at its maximum point. Attic ventilation openings shall be sufficient to provide the required volume of combustion air and the attic ventilation required by the building code. The combustion air openings shall be provided with a sleeve of not less than 0.019-inch (0.5 mm) (No. 26 gage) galvanized steel or other approved material extending from the appliance enclosure to at least 6 inches (152 mm) above the top of the ceiling joists and insulation.

Change Section 801.3 to read as follows:

801.3 Masonry chimneys. Masonry chimneys shall be constructed in accordance with the building code.

Change Section 801.16.1 to read as follows:

801.16.1 Residential and low-heat appliances (general). Flue lining systems for use with residential-type and low-heat appliances shall be limited to the following:

1. Clay flue lining complying with the requirements of ASTM C 315 or equivalent. Clay flue lining shall be installed in accordance with the building code.

2. Listed chimney lining systems complying with UL 1777.

3. Other approved materials that will resist, without cracking, softening or corrosion, flue gases and condensate at temperatures up to 1,800°F (982°C).

Change Section 801.18.4 to read as follows:

801.18.4 Clearances. Chimneys and vents shall have air space clearance to combustibles in accordance with the building code and the chimney or vent manufacturer's installation instructions.

Exception: Masonry chimneys equipped with a chimney lining system tested and listed for installation in chimneys in contact with combustibles in accordance with UL 1777, and installed in accordance with the manufacturer's instructions, shall not be required to have clearance between combustible materials and exterior surfaces of the masonry chimney. Noncombustible fire-blocking shall be provided in accordance with the building code.

Change Section 804.3.3 to read as follows:

804.3.3 Termination. The termination of chimneys or vents equipped with power exhausters shall be in accordance with the approved specifications of the manufacturer of the appliance except that they shall not exhaust over public ways or walkways. The exhaust shall be directed away from the building.

Change Section 804.3.8 to read as follows:

804.3.8 Connections to exhauster. All appliance connections to a chimney or vent equipped with a power exhauster shall be made on the inlet side of the exhauster unless the exhauster is an integral part of the appliance. All joints on the positive pressure side of the exhauster shall be sealed to prevent flue gas leakage.

Change Section 902.1 to read as follows:

902.1 General. Masonry fireplaces shall be constructed in accordance with the building code.

Change Sections 908.3 thru 908.5 to read as follows:

908.3 Location. Cooling towers, evaporative condensers and fluid coolers shall be located to prevent the discharge vapor plumes from entering occupied spaces. Plume

discharges shall be not less than 5 feet (1524 mm) above or 20 feet (6096 mm) away from any ventilation inlet to a building. Location on the property shall be required in accordance with the building code.

908.4 Support and anchorage. Supports for cooling towers, evaporative condensers and fluid coolers shall be designed in accordance with the building code. Seismic restraints shall be as required by the building code.

908.5 Water supply. Water supplies and protection shall be as required by the plumbing code.

Change Section 908.7 to read as follows:

908.7 Refrigerants and hazardous fluids. Heat exchange equipment that contains a refrigerant and that is part of a closed refrigeration system shall comply with Chapter 11. Heat exchange equipment containing heat transfer fluids which are flammable, combustible or hazardous shall comply with the fire code.

Change Section 910.3 to read as follows:

910.3 Bracing. The floor around the furnace shall be braced and headed with a support framework design in accordance with the building code.

Change Section 1001 to read as follows:

SECTION 1001
GENERAL

1001.1 Scope. In addition to the other provisions of this code, this chapter shall govern the installation, alteration, and repair of water heaters, boilers and pressure vessels. The provisions of the ASME Code for Boilers and Pressure Vessels as listed in Chapter 15 shall apply.

Exceptions:

1. Pressure vessels used for unheated water supply.

2. Portable pressure vessels and Interstate Commerce Commission containers.

3. Containers for liquefied petroleum gases, bulk oxygen and medical gas.

4. Pressure vessels having a volume of 5 cubic feet (0.14 m^3) or less operating at pressures not exceeding 250 psi (1724 kPa) and located within occupancies of Use Groups B, F, H, M, R, S and U.

5. Pressure vessels used in refrigeration systems that are regulated by Chapter 11 of this code.

6. Pressure tanks used in connection with coaxial cables, telephone cables, power cables and other similar humidity control systems.

7. Any boiler or pressure vessel subjected to inspection by federal or state inspectors.

1001.2 Periodic inspections. All boilers, steam generators and pressure vessels subject to the provisions of this code shall be inspected annually by the code official or representative. The inspection shall be as thorough as circumstances permit.

Exception: Heating boilers or pressure vessels which are located in buildings of Use Group R-3 or Use Group R-2 having six dwelling units or less.

1001.3 Certificate of inspection. A boiler, steam generator or pressure vessel subject to the provisions of this code shall not be placed in operation until a sticker denoting inspection and approval has been applied to the vessel.

1001.4 Major repairs. Welded repairs to boilers, steam generators and pressure vessels subject to the provisions of this code shall be performed only by those organizations which possess the appropriate ASME

Certificate of Authority with extension to field work or an "R" Certificate of Authority issued by the National Board of Boiler and Pressure Vessel Inspectors. A permit shall be required for such work. The fee shall be the same as the fee for installation of the vessel as set forth in Table 106.5.2. A hydrostatic test shall be performed on the vessel before it is returned to service.

1001.5 Condemnation. Any boiler or pressure vessel which, in the opinion of the code official, constitutes a hazard shall be deemed unsafe and sealed out of service.

Change Sections 1002.1 thru 1002.3 to read as follows:

1002.1 General. Potable water heaters and hot water storage tanks shall be listed and labeled and installed in accordance with the manufacturer's installation instructions, the plumbing code and this code. All water heaters shall be capable of being removed without first removing a permanent portion of the building structure. The potable water connections and relief valves for all water heaters shall conform to the requirements of the plumbing code. Domestic electric water heaters shall comply with UL 174 or UL 1453. Commercial electric water heaters shall comply with UL 1453. Oil-fired water heaters shall comply with UL 732.

1002.2 Water heaters utilized for space heating. Water heaters utilized both to supply potable hot water and provide hot water for space-heating applications shall be listed and labeled for such applications by the manufacturer and shall be installed in accordance with the manufacturer's installation instructions and the plumbing code.

1002.3 Supplemental water-heating devices. Potable water-heating devices that utilize refrigerant-to-water heat exchangers shall be approved and installed in accordance with the plumbing code and the manufacturer's installation instructions.

Change Section 1004.6 to read as follows:

> 1004.6 Boiler rooms and enclosures. Boiler rooms and enclosures and access thereto shall comply with the building code and Chapter 3 of this code. Boiler rooms shall be equipped with a floor drain or other approved means for disposing of liquid waste. In addition, except for

one- and two- family dwellings or when the boiler is entirely within a dwelling unit, all other boilers or combination boilers shall be installed in a room protected by an enclosure designed to prevent unauthorized entry. Storage or living quarters shall not be permitted in any boiler or similar heating equipment room.

Change Sections 1005.1 and 1005.2 to read as follows:

1005.1 Valves. Every boiler or modular boiler shall have shutoff valve in the supply and return piping. For multiple boiler or multiple modular boiler installations, every boiler or modular boiler shall have individual shutoff valves in the supply and return piping.

1005.2 Potable water supply. The water supply to all boilers shall be connected in accordance with the plumbing code.

Change Section 1006.1 to read as follows:

1006.1 Safety valves for steam boilers. All steam boilers shall be protected by safety valves as required by the ASME Code for Boiler and Pressure Vessels listed in Chapter 15.

Change Section 1006.6 to read as follows:

1006.6 Safety and relief valve discharge. Safety and relief valve discharge pipes shall be of rigid pipe that is approved for the temperature of the system. The discharge pipe shall be the same diameter as the safety or relief valve outlet. Safety and relief valves shall not discharge so as to be a hazard, a potential cause of damage or otherwise a nuisance. High-pressure-steam safety valves shall be vented to the outside of the structure. Where a low-pressure safety valve or a relief valve discharges to the drainage system, the installation shall conform to the plumbing code.

Change Sections 1008.1 and 1008.2 to read as follows:

1008.1 General. Every steam boiler shall be equipped with one gate valve and one quick-opening blow-off valve in series in each blow-down line. The valves shall be installed in the opening provided on the boiler. The minimum size of the valve shall be the size specified by the boiler manufacturer or the size of the boiler blow-off-valve opening.

1008.2 Discharge. Blow-off valves shall discharge to a safe place of disposal. Where discharging to the drainage system, the installation shall conform to the plumbing code.

Change Section 1009.3 to read as follows:

1009.3 Open-type expansion tanks. Open-type expansion tanks shall be located a minimum of 4 feet (1219 mm) above the highest heating element. The tank shall be adequately sized for the hot water system. An overflow with a minimum diameter of 1 inch (25.4 mm) shall be installed at the top of the tank. The overflow shall discharge to the drainage system in accordance with the plumbing code.

Add Section 1011.1.1 to read as follows:

1011.1.1 Test of existing vessels. The pressure for vessels previously in service shall be as specified in the National Board Inspection Code listed in Chapter 15.

Add Section 1012 to read as follows:

SECTION 1012
BLOWOFF TANKS

1012.1 General. Blowoff tanks shall be designed and fabricated in accordance with Section VIII of the ASME Boiler Code as listed in Chapter 15 and shall be so stamped.

1012.1.1 Boilers less than 100 psi. For boilers carrying one hundred psi steam pressure or less, the heads and shell shall be constructed of not less than one-fourth inch steel or equivalent strength material.

1012.1.2 Boilers greater than 100 psi. For boilers carrying in excess of one hundred psi pressure, tanks shall be fabricated of materials designed for the pressures carried.

1012.2 Size. The size of the tank shall be indicated by the blow down requirements, and the tank installed shall be large enough to blow down one gauge glass of water from one boiler or from any one of a battery of boilers interconnected. The size of the tank shall be of sufficient capacity so the blow down water from the boiler will only fill one-half the capacity of the tank, and the remaining volume of the tank will be available for the vapor displacement.

1012.3 Discharge. The discharge from the boiler or boilers shall enter the tank above the high water level or surface of the water in such tank. A baffle plate shall be installed in the tank in line with the inlet pipe from the boiler and shall be at least twelve inches from the discharge opening from the boiler into the tank. The outlet opening or discharge from the tank shall be at least two times the area of the inlet pipe, and such outlet pipe shall have an internal pipe built into the tank, extending downward to within four inches of the bottom of the tank. The discharge pipe shall be connected to a sewer through a running trap or to an approved leaching well.

1012.4 Venting.

1012.4.1 Vent pipe size. All blow-off tanks shall be properly vented to the outside atmosphere. Such vent pipes shall be at least four times the area of the inlet pipe from the boiler, and such pipe shall not be less than two inch iron pipe size.

1012.4.2 Pipe discharge. The vent pipe shall be run as directly as possible to the outside atmosphere and in a suitable location so that any steam or water discharged by the blow down of the boiler would not be dangerous or injurious to life.

1012.4.3 Vent obstructions. The vent shall be free of any pockets or sags that might collect or hold water or cause an obstruction of the pipe and pressure buildup in the tank. The end of the vent pipe shall be protected from the possibility of any obstruction.

1012.5 Manhole. Each blow down tank shall be provided with a suitable manhole for the inspection and cleaning of the tank.

Add Section 1013 to read as follows:

SECTION 1013
RETURN CONDENSATE

1013.1 Maximum temperature. The return condensate from a building heated by a central steam supply shall be permitted to be discharged either into a condensate return system or wasted into a sewer drain connection or approved leaching well. This condensate when discharging into a sanitary sewer system shall not be in excess of one hundred forty degrees Fahrenheit (140^{o}F) and shall discharge into an open floor drain or a special drain connection or approved receptor. If the floor drain or drain connection to the sewer is above the level of the return piping so that it cannot flow by gravity, an automatic sump pump shall be installed to pump the condensate from the sump to the sewer drain.

Add Section 1014 to read as follows:

SECTION 1014
FIELD ASSEMBLY

1014.1 Welding. Any welding required during assembly shall be performed by welders employed and qualified by companies in possession of the appropriate ASME Certificate of Authorization.

Change Section 1101.4 to read as follows:

> 1101.4 Water connection. Water supply and discharge connections associated with refrigeration systems shall be made in accordance with this code and the plumbing code.

Change Section 1101.9 to read as follows:

> 1101.9 Refrigerant discharge. Fire department shall be notified immediately upon the automatic or manual discharge of refrigerant from systems having a refrigerant circuit contain more than 220 pounds (100 kg) of group A1 or 30 pounds (14 kg) of any other group refrigerant. Refrigerant shall not be discharged except in an emergency.

Exception: Notification is not required for any of the following conditions:

1. Refrigeration systems operating at pressures below atmospheric and incorporating automatic purge systems.

2. Incidental operation of automatic pressure relief valves resulting in minor release of the refrigerant charge.

3. Incidental minor releases associated with service operations after system pump-down has been accomplished.

Change Section 1105.1 to read as follows:

1105.1 Design and construction. Machinery rooms shall be designed and constructed in accordance with the building code and this section.

Change Section 1105.3 to read as follows:

1105.3 Refrigerant detector. Machinery rooms shall contain a refrigerant detector with an audible and visual alarm. The detector, or sampling tube that draws air to the detector, shall be located in an area where the refrigerant from a leak will concentrate. The alarm shall be actuated at a value not greater than the corresponding TLV-TWA values shown in Table 1103.1 for the refrigerant classification. Detectors and alarms shall be placed in approved locations.

Exception: Detectors are not required for ammonia systems where the machinery room complies with section 1106.3.

Change Sections 1106.5 thru 1106.5.3.5to read as follows:

1106.5 Remote controls. Remote control of the mechanical equipment and appliances located in the machinery room

shall be provided at an approved location immediately outside the machinery room and adjacent to its principal entrance.

1106.5.1 Refrigeration system. A clearly identified switch of the break-glass type shall provide off-only control of electrically energized equipment and appliances in the machinery room, other than refrigerant leak detectors and machinery room ventilation.

1106.5.2 Ventilation system. A clearly identified switch of the break- glass type shall provide on-only control of the machinery room ventilation fans.

1106.5.3 Emergency control box. Emergency control boxes shall be provided for refrigeration systems required to be equipped with a treatment system, flaring system or ammonia diffusion system.

1106.5.3.1 Location. Emergency control boxes shall be located outside of the building at an approved accessible location. All portions of the emergency control box shall be 6 feet (1829 mm) or less above the adjoining grade.

1106.5.3.2 Construction. Emergency control boxes shall be of iron or steel not less than 0.055 inch (1.4 mm) in thickness and provided with a hinged cover and lock.

1106.5.3.3 Operational procedure. Valves and switches shall be identified in an approved manner as to the sequential procedure to be followed in the event of an emergency.

1106.5.3.4 Identification. Emergency control boxes shall be provided with a permanent label on the outside cover reading: FIRE DEPARTMENT USE ONLY - REFRIGERANT CONTROL BOX, and including the name of the refrigerant in the system. Hazard identification in accordance with NFPA 704 shall be posted inside and outside of the control box.

1106.5.3.5 Instructions. Written instructions and information shall be provided and located in the emergency control box designating the following information:

1. Instructions for suspending operation of the system in the event of an emergency.

2. The name, address and emergency telephone numbers to obtain emergency service.

3. The location and operation of emergency discharge systems.

Change Section 1106.6 to read as follows:

1106.6 Emergency signs. Refrigeration units or systems having a refrigerant circuit containing more than 220 pounds (100 kg) of Group A1 or 30 pounds (14 kg) of any other group refrigerant shall be provided with approved emergency signs, charts and labels in accordance with NFPA 704. Hazard signs shall be in accordance with Table 1103.1 for the classification of refrigerants listed therein.

Add Section 1110 to read as follows:

SECTION 1110
RESIDENTIAL AIR CONDITIONERS

1110.1 Permits. Mechanical permits shall not be required for residential air conditioning units for dwellings of six families or less.

1110.2 Residential split systems. When a condensing unit for residential uses (R-1, R-2 or R-3) is to be located on grade, it shall not be located in front of the building.

1110.3 Condenser foundations. All condensing units mounted on grade must be located on a level, four inch (4") thick concrete pad or other foundation approved by the code official prior to installation.

1110.4 Protection of refrigerant lines. All piping installed above grade, or underground, shall be protected from damage and corrosion in

keeping with recognized standard practice and the recommendations of the manufacturer.

1110.5 Units in areaways. Where areaways less than four feet in width exist between buildings, all window units shall be installed not less than seven feet above grade.

Change Section 1201.1 to read as follows:

> 1201.1 Scope. The provisions of this chapter shall govern the construction, installation, alteration and repair of hydronic piping systems. This chapter shall apply to hydronic piping systems that are parts of heating, ventilation and air-conditioning systems. Such piping systems shall include steam, hot water, chilled water, steam condensate and ground source heat pump loop systems. Potable cold and hot water distribution systems shall be installed in accordance with the plumbing code.

Add Section 1201.3 to read as follows:

> 1201.3 Ground source heat pump loop systems. Ground source heat pump loop systems shall be installed a minimum of 10 feet (3048 mm) from the property line

Change Section 1204.1 to read as follows:

> 1204.1 Insulation characteristics. Pipe insulation shall be tested in accordance with ASTM E 84 and shall have a maximum flame spread index of 25 and a smoke-developed index not exceeding 450. Insulation installed in an air plenum shall comply with Section 602.2.1.
>
> Exception: The maximum flame spread index and smoke-developed index shall not apply to one- and two-family dwellings.

Delete Section 1204.2.

Change Section 1206.2 to read as follows:

1206.2 System drain down. Hydronic piping systems shall be designed and installed to permit the system to be drained. Where the system drains to the plumbing drainage system, the installation shall conform to the requirements of the plumbing code.

Change Sections 1206.3 and 1206.4 to read as follows:

1206.3 Protection of potable water. The potable water system shall be protected from backflow in accordance with the plumbing code.

1206.4 Pipe penetrations. Openings for pipe penetrations in walls, floors or ceilings shall be larger than the penetrating pipe. Openings through concrete or masonry building elements shall be sleeved. The annular space surrounding pipe penetrations shall be protected in accordance with the building code.

Change Section 1301.1 to read as follow:

1301.1 Scope. This chapter shall govern the design, installation, construction and repair of fuel oil storage and piping systems. The storage of fuel oil exceeding the limitation of this chapter and flammable and combustible liquids shall be in accordance with the fire code.

Change Section 1301.2 to read as follows:

1301.2 Storage systems. Fuel-oil storage systems shall comply with the fire code. Fuel-oil piping systems shall comply with the requirements of this code.

Change Section 1401.2 to read as follows:

1401.2 Potable water supply. Potable water systems shall be protected against contamination in accordance with the plumbing code.

Change Section 1402.3 and 1402.3.1 to read as follows:

1402.3 Roof-mounted collectors. Roof-mounted solar collectors that also serve as roof covering shall conform to the requirements for roof coverings in accordance with the building code.

Exception: The use of plastic solar collector covers shall be limited to those approved plastics meeting the requirements for plastic roof panels in the building code.

1402.3.1 Collectors mounted above the roof. When mounted on or above the roof covering, the collector array and supporting construction shall be constructed of noncombustible materials or fire-retardant-treated wood conforming to the building code to the extent required for the type of roof construction of the building to which the collectors are accessory.

Exception: The use of plastic solar collector covers shall be limited to those approved plastics meeting the requirements for plastic roof panels in the building code.

Modify Chapter 15 by adding the following:

ANSI

NB-23 National Board Inspection Code.....1011.1.1

ASME

ASME-98 Boiler & Pressure Vessel Code

Sections I thru X 1001.1, 1001.4, 1004.1, 1006.1

1011.1, 1012.1

CODES

BNBC-99 BOCA National Building Code

BNFPC-99 BOCA National Fire Prevention Code

NFPA

50-1990 Bulk Oxygen Systems on Consumer Sites.....313.3

51-1992 Oxygen - Fuel Gas Systems for Welding, Cutting and Allied Processes.....313.3

54-1992 National Fuel Gas Code 1301.8, 1304.18

70-1999 National Electrical Code

90A-1993 Standard for the Installation of Air Conditioning and Ventilating Systems...202

96-1994 Cooking Equipment, Vapor Removal 506.1, 506.3

99C-93 Gas and Vacuum Systems.....313.1, 313.2

704-1990 Fire Hazards of Materials, Identification.....

SECTION FOUR.

Any person who shall violate a provision of this code or shall fail to comply with any of the requirements thereof, or who shall erect, construct, alter, extend, repair, remove, demolish, use or occupy any building, structure or premises or equipment regulated by this code in violation of an approved construction document or directive of the code official or the Board of Building Appeals, or of a permit, license or certificate issued under the provisions of this code, shall, upon conviction thereof, be punished by a fine of not more than five hundred dollars , or by imprisonment not exceeding ninety days, or both such fine and imprisonment. Each day that a violation continues shall constitute a separate and distinct offense.

SECTION FIVE.

That nothing in this Ordinance or in the Mechanical Code hereby adopted shall be construed to affect any suit or proceeding impending in any court, or any rights acquired, or liability incurred, or any cause or causes of action acquired or existing, under any act or ordinance hereby repealed as cited in Section One of this Ordinance; nor shall any just or legal right or remedy of any character be lost, impaired or affected by this Ordinance.

SECTION SIX.

If a section, subsection, sentence, clause or phrase of this code is, for any reason held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this code.

SECTION SEVEN.

This being an ordinance necessary for the immediate preservation of the public safety, it is hereby declared to be an emergency measure and shall become effective immediately upon its approval by the mayor, but the provisions shall not be enforced until September 8, 2000.

Legislative History

1ST READING	REF TO COMM	COMMITTEE	COMM SUB	COMM AMEND
06/30/00	06/30/00	PS		
2ND READING	**FLOOR AMEND**	**FLOOR SUB**	**PERFECTN**	**PASSAGE**
07/07/00			07/21/00	07/21/00
ORDINANCE	**VETOED**	**VETO OVR**	**SIGNED BY MAYOR**	
65021			08/02/00	